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Sue to Adapt?

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Article

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INTRODUCTION

When Superstorm Sandy made landfall in New Jersey—just days before the 2012 U.S. Presidential election—it did not simply bring exceptionally strong winds, heavy rain, and record storm surge. This devastating storm also brought renewed political will to discuss the issue of climate change, particularly the need to limit and prepare for its impacts.[1] In his second inaugural address in January 2013, for example, President Obama notably promised to "respond to the threat of climate change, knowing that the failure to do so would betray our children and future generations. Some may still deny the overwhelming judgment of science, but none can avoid the devastating impact of raging fires and crippling drought and more powerful storms."[2] Since then, President Obama has announced a number of new climate change measures, which have included initiatives to support more adaptation planning at federal, state, and local levels.[3]

At the same time as federal executive action on climate change adaptation has accelerated, U.S. courts and administrative tribunals have been asked to adjudicate a first wave of U.S. cases focused directly on adaptation planning. These cases address a myriad of issues facing coastal areas: the takings implications of protective sand dunes, the inundation of the sew-

1. For an example of news reports making these linkages, see Elizabeth Kolbert, *Watching Sandy, Ignoring Climate Change*, NEW YORKER (Oct. 29, 2012), http://www.newyorker.com/news/news-desk/watching-sandy-ignoring-climate-change.html.

2. President Barack Obama, Inaugural Address (Jan. 21, 2013), *available at* http://www.whitehouse.gov/the-press-office/2013/01/21/inaugural-address-president-barack-obama.

3. *See infra* Part II.B.

age system, the resiliency of the electricity grid, the deterioration of coastal waters, and the increase in flood insurance premiums.[4] This Article is the first to explore the regulatory significance of, and future pathways for, this emerging litigation.

The increasing U.S. focus on adaptation in both policy and litigation represents a significant shift in our approach to climate change. The U.S. debate over climate change has largely focused on mitigation: how to go about reducing U.S. greenhouse gas (GHG) emissions from energy production, transportation, industrial manufacturing, and land sector activities. There has been far less attention paid to the question of adaptation—how governments, businesses, communities and individuals should take action to manage the consequences of a changed climate and to reduce vulnerability to the effects of climate change.[5] Compared with other developed countries, the United States has been a slow mover in dealing with and preparing for climate change impacts.[6] As Professor J.B. Ruhl explains, "neglect of national policy for climate change adaptation" in the United States has been an artifact of "the policy world's fixation on achieving, or blocking, federal greenhouse gas emission legislation as part of our national strategy for climate change mitigation."[7]

To some extent, the focus on mitigation rather than adaptation has been a political choice by U.S. environmental organizations and elected representatives. They have feared that a public conversation about adaptation might decrease pressure to mitigate.[8] But the adaptation debate has also been constrained by the diversity of local impacts and the largely state and local character of the applicable law. For example, coastal communities face risks of sea level rise, inundation, erosion, storm surge, and more intense storms.[9] For other communities, climate change may take the form of heatwaves, drought and increased wildfires, shifting snowpack melt, floods, and drastic

4. *See infra* Part II.C.

5. J.B. Ruhl, *Climate Change Adaptation and the Structural Transformation of Environmental Law*, 40 ENVTL. L. 363, 365–66 (2010).

6. Michael Mullan et al., *National Adaptation Planning: Lessons from OECD Countries* (Org. for Econ. Co-operation & Dev., Env't Working Paper No. 54, 2013).

7. Ruhl, *supra* note 5, at 365–66.

8. A. Dan Tarlock, *Now, Think Again About Adaptation*, 9 ARIZ. J. INT'L & COMP. L. 169 (1992).

9. Intergovernmental Panel on Climate Change [IPCC], *Climate Change 2007: Impacts, Adaptation and Vulnerability*, at 316–56 (2007) [hereinafter IPCC, *Climate Change* 2007], *available at* http://www.ipcc.ch/pdf/assessment-report/ar4/wg2/ar4_wg2_full_report.pdf.

ecosystem changes.[10] Some communities may even experience beneficial impacts from climate change, at least in the short term, as warmer weather and more favorable conditions for agriculture migrate towards higher latitudes.[11]

However, as the economic and human losses from extreme weather events have mounted,[12] political and public opinion has perceptibly shifted, reflecting concern—documented by climate scientists[13]—that climate change is contributing to the severity

10. *Id.* at 11–12.

11. For instance, in the shorter term, climate change may be beneficial for grape growing areas in the Western United States, but over the longer term, increased temperatures are likely to be detrimental. *See* Gregory V. Jones, *Climate Change in the Western United States Grape Growing Regions*, 689 ACTA HORTICULTURAE 41 (2005), *available at* http://www.sou.edu/assets/envirostudies/gjones_docs/GJones-ActaHorticulturae05.pdf. In the Australian context, see Leanne Beryl Webb, The Impact of Projected Greenhouse Gas-Induced Climate Change on the Australian Wine Industry (Oct. 2006) (unpublished Ph.D. thesis, University of Melbourne), *available at* http://Minerva-access.unimelb.edu.au/bitstream/handle/11343/39214/67182_00003030_01_Leanne_Web_Final_Thesis.pdf; *see also* J.B. Ruhl, *The Political Economy of Climate Change Winners*, 97 MINN. L. REV. 206, 221–25 (2012); Victor B. Flatt, *More Than Winners and Losers: The Importance of Moving Climate and Environmental Policy Debate Toward a More Transparent Process*, 97 MINN. L. REV. HEADNOTES 26 (2013).

12. Although extreme weather events and other disasters often galvanize public opinion and political action, the relationship between climate change and a particular storm is complex. Namely, the accumulation of greenhouse gases [GHGs] in the atmosphere leads to an increase in the frequency and severity of extreme weather events such as hurricanes, drought and wildfires. Scientists increasingly warn that a "changing climate leads to changes in the frequency, intensity, spatial extent, duration, and timing of extreme weather and climate events, and can result in unprecedented extreme weather and climate events." Intergovernmental Panel on Climate Change [IPCC], *Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation*, at 491 (2012) [hereinafter IPCC, *Managing the Risks*], *available at* http://www.ipcc-wg2.gov/SREX/images/uploads/SREX-All_FINAL.pdf; s*ee also* CLIMATE COMM'N, THE CRITICAL DECADE: EXTREME WEATHER 4 (2013), *available at* http://apo.org.au/files/Resources/ExtremeWeatherReport_web.pdf. With eleven different extreme weather events costing over $110 billion in estimated damages, 2012 was the second costliest year on record. Andrew Freedman, *$100 Billion Price Tag for Extreme Weather Events in 2012*, CLIMATE CENT. (June 13, 2013), http://www.climatecentral.org/news/extreme-weather-cost-us-110-billion-in-2012-16117.

13. Regardless of the success of global mitigation efforts in decreasing GHG emissions, some level of climate change impact is unavoidable. Intergovernmental Panel on Climate Change [IPCC], *Climate Change 2013: The Physical Science Basis*, at 27 (2013), *available at* http://www.climatechange2013.org/images/report/WG1AR5_ALL_FINAL.pdf ("Most aspects of climate change will persist for many centuries even if emissions of CO_2 are stopped. This represents a substantial multi-century climate change commitment created by past, present and future emissions of CO_2.").

of recent natural disasters.[14] While climate change cannot be held responsible for any single event like Superstorm Sandy or Hurricane Katrina, our failure to mitigate "stack[s] the odds" towards more extreme weather in the United States and around the world.[15] This shift has helped spur the current set of policy initiatives and lawsuits.

This Article presents a much-needed analysis of the new phenomenon of adaptation planning suits in the United States. The handful of such cases currently winding their way through U.S. courts may be the beginning of a major new area of litigation in this country focused on adaptation. If the more developed U.S. jurisprudence on climate change mitigation is any guide, our courts will likely be key players in shaping regulatory responses to adaptation. Litigation has played a crucial role in shaping U.S. mitigation strategies, especially through regulation pursuant to the Supreme Court's decision in *Massachusetts v. EPA* in the wake of Congress's failure to pass comprehensive climate change legislation.[16]

While the U.S. jurisprudence on mitigation issues, including the Supreme Court's decisions in *Massachusetts v. EPA*,[17] *American Electric Power Co. v. Connecticut*,[18] and *Utility Air Regulatory Group v. EPA*,[19] has been the subject of extensive discussion in the literature,[20] adaptation cases have received lit-

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14. YALE PROJECT ON CLIMATE CHANGE COMMC'N, EXTREME WEATHER, CLIMATE & PREPAREDNESS IN THE AMERICAN MIND 2 (2012), *available at* http://environment.yale.edu/climate-communication/files/Extreme-Weather-Climate-Preparedness.pdf; *see also* THE LAW OF ADAPTATION TO CLIMATE CHANGE: U.S. AND INTERNATIONAL ASPECTS 3–8 (Michael B. Gerrard & Katrina Fischer Kuh eds., 2012). We explore the nuances of these public opinion shifts, as well as disaster resilience framing as a way to spur bipartisan action on climate change adaptation, in Hari M. Osofsky & Jacqueline Peel, *Energy Partisanship*, 65 EMORY L.J. (forthcoming 2016).

15. Will Steffen, *Heat Is on To Combat Climate Change's Silent Killer*, AGE (Feb. 18, 2014), http://www.theage.com.au/comment/heat-is-on-to-combat-climate-changes-silent-killer-20140217-32w6h.html.

16. 549 U.S. 497 (2007); Jacqueline Peel & Hari M. Osofsky, *Climate Change Litigation's Regulatory Pathways: A Comparative Analysis of the United States and Australia*, 35 L. & POL'Y 150, 163 (2013).

17. 549 U.S. at 528.

18. 131 S. Ct. 2527, 2532 (2011).

19. 134 S. Ct. 2427, 2449 (2014).

20. *See, e.g.*, Elizabeth Fisher, *Climate Change Litigation, Obsession and Expertise: Reflecting on the Scholarly Response to* Massachusetts v. EPA, 35 L. & POL'Y 236 (2013); David Markell & J.B. Ruhl, *An Empirical Survey of Climate Change Litigation in the United States*, 40 ENVTL. L. REP. 10644 (2010); Hari M. Osofsky, *The Continuing Importance of Climate Change Litigation*, 1 CLIMATE L. 3 (2010); Hari M. Osofsky, *Is Climate Change "International"? Litigation's Diagonal Regulatory Role*, 49 VA. J. INT'L L. 585

tle attention,[21] in part because of their novelty in the United States.[22] To help understand the potential impact of the emerging U.S. adaptation case law and the ways that it might evolve in the future, the Article examines the more developed, comparative experience of adaptation litigation in Australia. In so doing, the Article not only analyzes key lawsuits in the United States[23] and Australia,[24] but also draws from extensive interviews conducted by the authors with U.S. and Australian litigants and regulators. Interviewees include those who have brought many of the suits in both jurisdictions, judges who have decided these cases, and those affected by their outcomes.[25]

As diverse stakeholders shape the future course of adaptation-related litigation and regulation, the United States potentially has much to learn from Australia. This country faces many climate change risks in common with the United States and has a similar legal system. Australia's recent experience of multiple natural disasters—from drought and heatwaves to flood, hurricanes, and wildfires—has seen it dubbed "the [f]ace of [c]limate [c]hange to [c]ome."[26] This experience has also gen-

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(2009); Hari M. Osofsky & Jacqueline Peel, *The Role of Litigation in Multilevel Climate Change Governance: Possibilities for a Lower Carbon Future*, 30 ENVTL. & PLAN. L.J. 303 (2013); Brian J. Preston, *Climate Change Litigation (Part 1)*, 2011 CARBON & CLIMATE L. REV. 3; Brian J. Preston, *Climate Change Litigation (Part 2)*, 2011 CARBON & CLIMATE L. REV. 244; Julia Schatz, *Climate Change Litigation in Canada and the USA*, 18 REV. EUR. COMMUNITY & INT'L ENVTL. L. 129 (2009).

21. For an exception, see J. Peter Byrne & Jessica Grannis, *Coastal Retreat Measures*, *in* THE LAW OF ADAPTATION TO CLIMATE CHANGE: U.S. AND INTERNATIONAL ASPECTS 267 (Michael B. Gerrard & Katrina Fischer Kuh eds., 2012).

22. David Markell & J.B. Ruhl, *An Empirical Assessment of Climate Change in the Courts: A New Jurisprudence or Business As Usual?*, 64 FLA. L. REV. 15 (2012) (noting the absence of adaptation claims in climate change litigation).

23. Michael Gerrard et al., *Climate Change Litigation in the U.S.*, ARNOLD & PORTER LLP, http://www.arnoldporter.com/resources/documents/ClimateChangeLitigationChart.pdf (last visited Apr. 21, 2015).

24. Jacqueline Peel, *Australian Climate Change Litigation*, CENTRE FOR RESOURCES, ENERGY & ENVTL. L., MELBOURNE L. SCH., http://www.law.unimelb.edu.au/creel/research/climate-change (last visited Apr. 21, 2015).

25. The authors have conducted thirty-five interviews with U.S. and Australian respondents closely involved with or affected by climate change litigation. Respondents have included judges deciding climate cases, lawyers litigating cases, regulators, corporate representatives, planners, and representatives from non-governmental environmental organizations.

26. Matt Siegel, *Is Australia the Face of Climate Change To Come?*, NAT'L GEOGRAPHIC NEWS (May 24, 2013), http://news.nationalgeographic.com/news/

erated greater public and political awareness around the issue of adaptation in Australia and, at the same time, led to numerous adaptation cases dealing with a broad range of potential climate change impacts, which have played a significant role in shaping regulation.[27] As advocacy regarding adaptation continues to increase in the United States, the Australian litigation experience may offer a source of ideas and strategies for U.S. litigants seeking to use lawsuits to improve the nation's preparedness to deal with climate change impacts.

Part I begins by analyzing the role of emerging adaptation litigation in the United States. It explores the climate impacts facing the United States, multi-level governmental action to plan for these impacts, and the nascent U.S. case law on adaptation issues. Apart from Endangered Species Act and tort cases—which may be viewed as a form of adaptation litigation[28]—most U.S. cases directly addressing adaptation issues are newly decided or still under consideration by the courts.

Part II then presents the situation in Australia, examining the nation's greater exposure to early climate change impacts, and the respective roles that government regulatory efforts and litigation have played in addressing that vulnerability. In order to understand the risks and possibilities for future U.S. jurisprudence, this Part considers how Australian litigation regarding coastal impacts and disaster risks has influenced proactive regulation both positively and negatively.

Part III draws from these comparative experiences to provide an assessment of ways in which the more established body of Australian case law might serve as a model for U.S. strategies. It argues that the Australian litigation illustrates pathways for U.S. litigation to build on its early cases to: (1) change

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2013/13/130524-australia-extreme-weather-climate-change-heat-wave-science-world.

27. *See* Tim Bonyhady, *Swimming in the Streets: The Beginnings of Planning for Sea Level Rise*, *in* ADAPTATION TO CLIMATE CHANGE: LAW AND POLICY 80 (Tim Bonyhady et al. eds., 2010); Jan McDonald, *The Adaptation Imperative: Managing the Legal Risks of Climate Change Impacts*, *in* CLIMATE LAW IN AUSTRALIA 124 (Tim Bonyhady & Peter Christoff eds., 2007); Jacqueline Peel, *Climate Change Law: The Emergence of a New Legal Discipline*, 32 MELB. U. L. REV. 922 (2008); Jacqueline Peel & Lee Godden, *Planning for Adaptation to Climate Change: Landmark Cases from Australia*, 9 SUSTAINABLE DEV. L. & POL'Y 37 (2009); Brian J. Preston, *The Role of Courts in Relation to Adaptation to Climate Change*, *in* ADAPTATION TO CLIMATE CHANGE: LAW AND POLICY, *supra*.

28. *See* J.B. Ruhl, *Climate Change and the Endangered Species Act: Building Bridges to the No-Analog Future*, 88 B.U. L. REV. 1 (2008) (discussing the role of the Endangered Species Act in climate change adaptation).

planning culture, (2) use natural disasters as catalysts for adaptive planning, and (3) navigate more effectively the tensions between public adaptation interests and private property rights.

The Article concludes with final reflections on the appropriate role of adaptation litigation in climate change regulation. It considers future directions for this litigation and possibilities for an enhanced focus on adaptation in the United States to complement its mitigation efforts.

I. EMERGING ADAPTATION LITIGATION IN THE UNITED STATES

The United States faces significant and diverse impacts from climate change, which it has just begun to address more substantially through multi-level regulatory initiatives. This Part explores these regulatory developments and analyzes how they interact with nascent adaptation planning suits.

As noted in the introduction, unlike the mitigation context—in which governments, nongovernmental organizations, corporations, and individuals have brought hundreds of cases that have shaped the regulatory path of the United States in significant ways[29]—U.S. adaptation planning litigation is just beginning to emerge. These adaptation suits supplement a longer-standing set of cases involving petitions for the listing of endangered species as climate change threatened or endangered, and tort actions in response to disasters. This Part analyzes the role of both earlier and emerging adaptation litigation in the evolving U.S. regulatory context.

A. CLIMATE CHANGE IMPACTS

The United States faces a wide range of adaptation challenges.[30] The Third U.S. National Climate Assessment, released in May 2014, documents the changes that have occurred in the climate since the last report in 2009 and projects further likely

29. Hari M. Osofsky & Jacqueline Peel, *Climate Change Litigation's Regulatory Pathways: A Comparative Analysis of the United States and Australia*, 35 L. & POL'Y 150 (2013).

30. Christopher B. Field et al., *North America*, *in* CLIMATE CHANGE 2007: IMPACTS, ADAPTATION AND VULNERABILITY 617–52 (2007); *see also* Patricia Romero-Lankao et al., IPCC, Working Group II, *North America*, *in* CLIMATE CHANGE 2014: IMPACTS, ADAPTATION, AND VULNERABILITY PART B: REGIONAL ASPECTS 1439–89 (V.R. Barros et al. eds., 2014), *available at* https://ipcc-wg2.gov/AR5/images/uploads/WGIIAR5-PartB_FINAL.pdf.

changes for the U.S. climate over the next century.[31] These include higher temperatures and more intense heatwaves, lengthening of the frost-free growing season, increased heavy downpours, greater intensity of strong hurricanes, rising sea levels, reduced ice volume and extent, and worsening ocean acidification affecting marine ecosystems.[32]

As explored in the following part on Australia, the United States and Australia face many climate change impacts in common. However, the United States has much greater variations in geography than Australia.[33] U.S. coastal communities grapple with sea level rise, more severe storms, inundation and shoreline erosion.[34] Regions with limited water resources that are already over-allocated face further constraints.[35] Heatwaves and increased temperatures compound urban pollution problems and health effects.[36] In warmer regions, temperatures are becoming more extreme, and in cooler regions, summer temperatures strain infrastructure unaccustomed to cooling needs.[37] Many places also face increases in disturbances such as wildfires and insect outbreaks. This U.S. geographic variation produces "an uneven distribution of likely impacts, vulnerabilities and capacities to adapt."[38] For example, while more intense droughts are predicted for the Southwest of the country as a result of climate change, the Midwest and Northeast regions are expected to receive more rainfall and experience heavier, more intense downpours and flooding.[39]

Spatial variability in the manifestation of impacts and the extent of adaptive capacity is, of course, a hallmark of climate change. But in a country of the size and population of the United States, such variability means that adaptation risks and responses are generally considered on a region-by-region basis. The website on *Climate Change Impacts and Adapting to Cli-*

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31. U.S. GLOBAL CHANGE RESEARCH PROGRAM, CLIMATE CHANGE IMPACTS IN THE UNITED STATES: THE THIRD NATIONAL CLIMATE ASSESSMENT 11 (Jerry M. Melillo et al. eds., 2014).

32. *Id.*

33. *See* Field et al., *supra* note 30, at 619, 621–26 (describing potential impacts of climate change in relation to various geographical conditions in the United States).

34. *Id.* at 630.

35. *Id.* at 627.

36. *Id.* at 632.

37. *Id.* at 632–33.

38. *Id.* at 619.

39. U.S. GLOBAL CHANGE RESEARCH PROGRAM, *supra* note 31, at 372, 397, 419.

mate Change maintained by the U.S. Environmental Protection Agency provides a good example. Impacts and adaptation risks are described by region as well as by sector.[40] The main risks described for the Southeast (sea level rise, increased hurricane intensity, and storm surge) differ substantially from those for the Great Plains region (hotter temperatures and more frequent droughts) or for the Southwest (increased water scarcity, drought, and wildfire).[41]

Significant regional variability in climate change impacts, together with the regionalized effects of extreme weather events like storms, fires, floods or droughts, may be a factor in explaining the relatively low profile—at least pre-Superstorm Sandy—of adaptation in the United States. While some events receive national attention, many more are treated as purely local disasters, which may encourage a view that they are "one-offs" rather than part of a larger national and international trend. This situation seems to be changing, however, with increases in the number of weather-related events causing widespread loss and damage in the United States.

In time, 2012 may come to be seen as a turning point year in this regard. In a summary of data used in a 2013 report on the State of the Climate, the National Oceanic and Atmospheric Administration (NOAA) declared 2012 as the "warmest and second most extreme year on record for the contiguous U.S."[42] About one-third of all Americans experienced ten days or more of 100°F heat.[43] Droughts, floods, fires, tornados and storms affected communities across the country. And then in November 2012, came Superstorm Sandy. Superstorm Sandy's exceptionally strong winds, heavy rain and snow, and record storm surge caused more than a hundred people to lose their lives and in-

40. *Climate Change Impacts and Adapting to Change*, U.S. ENVTL. PROT. AGENCY, http://www.epa.gov/climatechange/impacts-adaptation (last visited Apr. 21, 2015).

41. *Id.*

42. *National Summary Information*, NAT'L OCEANIC & ATMOSPHERIC ADMIN. (Dec. 2012), http://www.ncdc.noaa.gov/sotc/summary-info/national/2012/12. For a report on 2012 climate data with NOAA scientists as lead editors, see *State of the Climate in 2012*, 94 BULL. AM. METEOROLOGICAL SOC'Y S1 (2013), *available at* http://www.ncdc.noaa.gov/news/2012-state-climate-report-released.

43. *President Obama's Plan To Fight Climate Change*, WHITE HOUSE (June 25, 2013), http://www.whitehouse.gov/share/climate-action-plan.

flicted massive damage on infrastructure and property in New York and New Jersey.[44]

Sandy has been variously described as a "superstorm," "Frankenstorm" and "a "freakish and unprecedented monster."[45] Its severity and uncanny timing—just before the 2012 presidential election in which climate change had not featured as an issue up to that point—catapulted climate change and adaptation issues to front page news. Impacts from a single extreme weather event, such as Superstorm Sandy, are the most complex to connect to climate change. Nonetheless, such events fit with the trend towards more extreme weather in North America that can be linked to climate change.[46] A Munich re report issued two weeks prior to Sandy presciently stated that North America has been the region of the world most affected by weather-related extreme events in recent decades.[47] The study by the reinsurance group showed a nearly quintupling in the number of "weather-related loss events" in North America for the past three decades.[48] One of these events was Hurricane Katrina affecting New Orleans in 2005, "one of the most devastating hurricanes in the history of the United States."[49] Superstorm Sandy, with its massive impacts, was not included because of the timing of the report.

As the economic and human losses from such events have grown, there has been a gradual shift in public opinion. Public opinion surveys suggest that the general public perceives a trend towards more extreme weather in the United States. A 2012 poll of U.S. residents conducted by researchers at the Yale Project on Climate Change Communication found that respondents believed, by a margin of two to one (fifty-two percent to twenty-two percent), that weather in the United States has been getting worse.[50] The same poll found that a large majority

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44. *See* CDC, *Deaths Associated with Hurricane Sandy*, 62 MORBIDITY & MORTALITY WKLY. REP. 393, 393–97 (May 24, 2013), *available at* http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6220a1.htm.

45. Kolbert, *supra* note 1.

46. IPCC, *Managing the Risks*, *supra* note 12.

47. MUNICH REINSURANCE AM., SEVERE WEATHER IN NORTH AMERICA: PERILS RISKS INSURANCE, EXECUTIVE SUMMARY (2012), *available at* http://www.munichreamerica.com/site/mram/get/documents_E1449378742/mram/assetpool.mr_america/PDFs/3_Publications/ks_severe_weather_na_exec_summary.pdf.

48. *Id.*

49. *Hurricanes in History*, NAT'L OCEANIC & ATMOSPHERIC ADMIN., http://www.nhc.noaa.gov/outreach/history (last visited Apr. 21, 2015).

50. ANTHONY LEISEROWITZ ET AL., EXTREME WEATHER, CLIMATE AND PREPAREDNESS IN THE AMERICAN MIND 2 (2012), *available at* http://

of Americans believe that climate change has contributed to the severity of recent natural disasters.[51] This trend seems likely to continue as the United States faces more climate change-related impacts.

B. GOVERNMENT ACTION TO ADDRESS ADAPTATION

Most current U.S. adaptation activity occurs at the local, state, and regional levels through mechanisms such as land use planning, protection of infrastructure and ecosystems, building design regulations, and emergency preparation, response, and recovery.[52] Although the United States has been a slow mover on adaptation compared to other developed countries, its activity has accelerated over the last several years.[53] The growth of state activity exemplifies this trend. As of July 2012, fourteen states had completed adaptation plans, two states were in the process of writing their plans, and seven states had made recommendations for the creation of such plans.[54] In addition, some states had enacted legislation or created programs that address climate change vulnerabilities such as water scarcity or loss of land through sea level rise.[55] By February 2015, Georgetown's Climate Center identified thirty-one states, Washington, D.C., and one territory as having done some form of adaptation planning.[56] This smaller scale emphasis, however, has meant that U.S. efforts on adaptation are highly fragmented as different smaller scale governments use varying strategies.

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environment.yale.edu/climate-communication/files/Extreme-Weather-Climate-Preparedness.pdf.

51. *Id.* There is, however, a significant partisan divide in people's views of these linkages, even as both Democrats and Republicans show more concern. *See* Osofsky & Peel, *Energy Partisanship*, *supra* note 14,

52. Rosina Bierbaum et al., *A Comprehensive Review of Climate Change Adaptation in the United States: More Than Before, but Less Than Needed*, 18 MITIGATION & ADAPTATION STRATEGIES FOR GLOBAL CHANGE 361, 371 (2012).

53. For a review of national adaptation planning efforts in OECD countries, see Mullan et al., *supra* note 6.

54. *Id.* at 50.

55. *Id.*

56. According to the Georgetown Climate Center, states and territories who have done some form of adaptation planning include Alaska, Arizona, California, Colorado, Connecticut, Delaware, Florida, Guam, Illinois, Iowa, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Nevada, New Hampshire, New Jersey, New Mexico, New York, North Carolina, Oregon, Pennsylvania, Rhode Island, South Carolina, Tennessee, Vermont, Virginia, Washington, Washington, D.C., and Wisconsin. *See State and Local Adaptation Plans*, GEORGETOWN CLIMATE CTR., http://www.georgetownclimate.org/node/3324 (last visited Apr. 21, 2015).

At the federal level, adaptation only became a focus of U.S. policy under the Obama Administration. In October 2009, President Obama created an Interagency Climate Change Adaptation Taskforce to recommend ways in which federal policies and programs could prepare for climate change better.[57] By the same Executive Order, the President directed federal agencies to "evaluate agency climate change-risks and vulnerabilities and to manage the effects of climate change on the agency's operations and mission in both the short and long term."[58]

Activity accelerated during President Obama's second term of office, with several significant new developments in 2013 alone. In February 2013, federal agencies released their respective climate change adaptation plans applicable to their operations, missions and programs.[59] The President's Climate Action Plan issued in June 2013 set out a further series of actions by the executive government to prepare the United States for the impacts of climate change.[60] These actions are largely directed at removing barriers or supporting the activities of other actors at the state, local, and tribal levels that will enhance climate change "resilience."[61] The plan also aims to build scientific capacity and identify vulnerabilities in key sectors such as agriculture, water, health, and energy.[62]

The Obama Administration supplemented this plan with a further executive order in November 2013 that directed federal agencies to take a variety of steps on adaptation with the aim of promoting:

> (1) engaged and strong partnerships and information sharing at all levels of government; (2) risk-informed decisionmaking and the tools to facilitate it; (3) adaptive learning, in which experiences serve as opportunities to inform and adjust future actions; and (4) preparedness planning.[63]

The order specifically focused on modernizing federal programs to support resilient investment; managing lands and waters for climate preparedness and resilience; providing information, data, and tools; and federal agency planning for climate-related risk.[64] It established both a federal-level interagency Council on Climate Preparedness and Resilience and a

57. Exec. Order No. 13,514, 74 Fed. Reg. 52,117 (Oct. 5, 2009).
58. *Id.*
59. *President Obama's Plan To Fight Climate Change*, *supra* note 43.
60. *Id.*
61. *Id.*
62. *Id.*
63. Exec. Order No. 13,653, 78 Fed. Reg. 66,819 (Nov. 1, 2013).
64. *Id.*

smaller-scaled focused State, Local, and Tribal Leaders Task Force on Climate Preparedness and Resilience.[65]

Beyond the new efforts by the Obama Administration, concrete action taken by federal government has tended to have a restricted regional focus. For instance, the Rebuilding Taskforce set up in the wake of Superstorm Sandy has required that all federally funded Sandy-related rebuilding projects must meet a consistent flood risk reduction standard that takes into account increased risks from extreme weather events, sea level rise, and other climate change impacts.[66]

An important exception to that limited regional focus is the premium rate increases being introduced by the Federal Emergency Management Agency under the National Flood Insurance Program. These increases to reflect "true flood risk" potentially will have greater national impact.[67] If implemented in a way that accurately reflects the real cost of rising sea levels and increased coastal hazards from climate change, this regulatory action could radically reduce incentives for locating or rebuilding of properties in vulnerable coastal and low-lying areas. However, these reforms have received a setback with Congress passing legislation, the Homeowner Flood Insurance Affordability Act of 2014, to delay their implementation in response to growing public and political opposition to the reforms as coastal landowners digested the prospect of skyrocketing premiums.[68] Moreover, these measures raise some serious issues regarding equity, especially for low-income people who have fewer resources to respond when floods cause major property damage.[69] These equity impacts have formed the basis for litigation, as discussed below.

In sum, the U.S. has mostly responded to adaptation challenges in an incremental, *ad hoc* manner. While existing environmental laws—such as the Endangered Species Act, the Coastal Zone Management Act, the National Environmental

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65. *Id.*

66. *Federal Government Sets Uniform Flood Risk Reduction Standard for Sandy Rebuilding Projects*, HURRICANE SANDY REBUILDING TASK FORCE, U.S. DEPARTMENT OF HOUSING & URB. DEV. (Apr. 4, 2013), http://portal.hud.gov/hudportal/HUD?src=/sandyrebuilding/FRRS.

67. *Id.*

68. Homeowner Flood Insurance Affordability Act of 2014, Pub. L. No. 113–89.

69. Carolyn Kousky & Howard Kunreuther, *Addressing Affordability in the National Flood Insurance Program* (Wharton Univ. of Pa., Working Paper No. 2013-12, 2013), *available at* http://opim.wharton.upenn.edu/risk/library/WP2013-12_Affordability-NFIP_CK-HK.pdf.

Policy Act, or the Clean Water Act—may offer significant opportunities for crafting adaptation responses,[70] these avenues have not been extensively explored, either in regulation or litigation. The authors of the chapter on North America in the IPCC's 2014 Working Group II report on impacts, vulnerability and adaptation summarize the state of adaptation planning:

> There is increasing attention to adaptation among planners at all levels of government but particularly at the municipal level, with many jurisdictions engaging in assessment and planning processes. Yet, there are few documented examples of implementation of proactive adaptation and these are largely found in sectors with longer term decision-making, including energy and public infrastructure (*high confidence*). Adaptation efforts have revealed the significant challenges and sources of resistance facing planners at both the planning and implementation stages, particularly the adequacy of informational, institutional, financial and human resources, and lack of political will (*medium confidence*).[71]

However, the recent steps by the Obama Administration indicate a significant shift towards more coordination and integration of adaptation concerns at a federal level. These developments, in parallel with the emerging litigation described in the next section, suggest that the United States may be at a particularly crucial moment for influencing its adaptation strategies.

C. ADAPTATION LITIGATION

Just as in the policy sphere, the focus of U.S. climate change litigants has primarily been on the big battles over mitigation action rather than adaptation. Before 2012, there had not been any adaptation litigation in the United States beyond cases under the Endangered Species Act and tort lawsuits with adaptation implications.[72] However, this pattern has recently begun to change with several cases that portend an emerging wave of cases addressing the need to incorporate adaptation in-

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70. J. Peter Byrne & Jessica Grannis, *Coastal Retreat Measures*, *in* THE LAW OF ADAPTATION TO CLIMATE CHANGE: U.S. AND INTERNATIONAL ASPECTS 267, 319–37 (Michael B. Gerrard & Katrina F. Kuh eds., 2012) (discussing coastal and floodplain retreat policies, challenges to their implementation, and legal mechanisms available to governments at various levels to implement such policies, including measures the federal government could utilize under existing laws and programs); Dave Owen, *Climate Change and Environmental Assessment Law*, 33 COLUM. J. ENVTL. L. 57 (2008) (explaining how environmental impact review under laws such as the National Environmental Policy Act can limit greenhouse gas emissions).

71. Romero-Lankao et al., *supra* note 30, at 1478.

72. Markell & Ruhl, *supra* note 22, at 30–32; *see also* Gerrard et al., *supra* note 23.

to government planning and land valuation decisions. While these cases have had nowhere near the impact of the mitigation cases to date, these first few cases may yet be an indication of future U.S. litigation pathways[73]—for which the extensive Australian jurisprudence, described in the following part, may be a model.

This Section reviews the U.S. cases with significant implications for adaptation regulation. It begins with the somewhat more developed jurisprudence regarding climate-related species loss and post-disaster tort before turning to the newly emerging cases addressing coastal hazards and proactive disaster planning. The Section focuses on six exemplar recent cases to map potential pathways for future U.S. adaptation litigation. The first focuses on climate change impacts on a coastal sewage system. The second asks a coastal state's public utilities to incorporate adaptation into their planning. The third considers the takings implications of the government using its eminent domain authority to protect coastline. The fourth relies on the Clean Water Act to try to force Massachusetts to address increasing nitrogen pollution due to climate change in Cape Cod. Finally, the fifth and sixth, both of which have since been withdrawn but still serve as interesting examples, focus on the implications of climate change for the insurance sector. One challenged the reasonableness of rate increases for the National Flood Insurance Program that were designed to ensure that premiums reflect true flood risk. The other lawsuit involved a negligence claim by insurance companies against cities and municipalities for damage stemming from aging stormwater infrastructure that was inadequate to meet heavier rainfall patterns predicted with climate change.

1. Earlier Litigation with Some Connection to Adaptation: Endangered Species Act and Natural Disaster Tort Cases

This subsection discusses the state of U.S. adaptation litigation prior to the recent emergence of cases focused on governmental planning issues. In particular, it examines the adaptation implications of cases under the Endangered Species Act and tort law.

The United States arguably already has a relatively well-developed line of jurisprudence on adaptation issues, focused on addressing the problems that climate change poses for species.

73. *See* Markell & Ruhl, *supra* note 22, at 85 (citing adaptation case law as a potential growth area).

Beginning in 2001, several petitions and associated litigation sought the listing of species as threatened or endangered under the Endangered Species Act (ESA) on the basis of climate change impacts.[74] In general, these cases have been seen as part of the effort to promote federal government action on *mitigation* given the potential for ESA listing to trigger emissions reduction obligations in order to limit climate change impacts on listed species.[75] The ESA litigation, according to some, can also be seen to be adaptation-oriented since its focus is "what is climate change doing to the United States or to the world more broadly and how should that influence our decision-making."[76]

Two ESA mechanisms have particular relevance to adaptive action. The first is the requirement under section 7 for all federal agencies to, "in consultation with and with the assistance of the Secretary, insure" that all actions authorized, funded or carried out by such agencies are "not likely to jeopardize the continued existence" or "result in the destruction or adverse modification" of "critical habitat" of a listed species.[77] The second provision is section 9, which applies to "any person" including government agencies at all levels, corporations, and individuals. Section 9 enacts a prohibition on the "taking" of any endangered species in the United States or upon the high seas.[78] This taking prohibition has been extended to threatened species via regulations issued under section 4(d) of the Act.[79]

The best-known climate listing under the ESA is for the polar bear, whose Arctic sea ice habitat is imperiled by rising temperatures and sea ice melt.[80] A petition under the ESA for listing of the polar bear as either endangered (garnering the highest level of protection) or threatened was initially submitted by a nongovernmental organization (NGO), the Center for Biological Diversity (CBD), in 2005.[81] This petition subsequently became the subject of long-running litigation designed both

74. For an overview of the main petitions, see Brendan R. Cummings & Kassie R. Siegel, *Biodiversity, Global Warming, and the United States Endangered Species Act: The Role of Domestic Wildlife Law in Addressing Greenhouse Gas Emissions*, *in* ADJUDICATING CLIMATE CHANGE: STATE, NATIONAL, AND INTERNATIONAL APPROACHES 145 (William C.G. Burns & Hari M. Osofsky eds., 2009).

75. *Id.*

76. Telephone Interview with Participant US-L (Dec. 2, 2013).

77. 16 U.S.C. § 1536(a)(2) (2012).

78. *Id.* § 1538(a)(1).

79. 50 C.F.R. § 17.40 (2013).

80. Cummings & Siegel, *supra* note 74, at 155.

81. *Id.* at 157.

to force action by the Bush Administration (through the National Fish and Wildlife Service) and to resist challenges to listing of the species from the State of Alaska and various fossil fuel industry associations.[82] As a result of the legal pressure maintained by CBD and other NGOs through the litigation, the Bush Administration eventually listed the polar bear under the ESA in May 2008 as a threatened species on the basis of global warming impacts.[83]

Momentous as this listing—and the Bush Administration's accompanying acknowledgement of the science of climate change—was at the time, its full regulatory impact for both mitigation and adaptation remain unclear. In conjunction with listing the polar bear as threatened, the Bush Administration issued the "4(d) rule," which exempts all GHG-emitting projects from the ambit of section 7 of the ESA.[84] Subsequent litigation challenged the 4(d) rule and was partially successful on procedural grounds under the National Environmental Policy Act,[85] but the rule remains in place, following its re-adoption by the Obama Administration.[86] This has effectively drawn a line under the potential for ESA litigation to contribute to mitigation action, at least in the context of the polar bear.[87]

Interviewees highlighted, however, that as an adaptation tool, ESA litigation has had more substantial success and "real world impact," especially under the Obama Administration, which has given agencies more latitude to take climate change into account in their planning activities.[88] As one interviewee described it:

> [T]he Forest Service, the Bureau of Land Management or other land management agencies used to not consider climate change at all in their land management plans. Now through litigation raising these kinds of issues—they're not doing a good job of it yet—but they are starting to at least make an effort of, like, okay, how do we maintain

82. *Id.* at 159–62.

83. Determination of Threatened Status for the Polar Bear (Ursus maritimus) Throughout Its Range, 73 Fed. Reg. 28212 (May 15, 2008) (codified at 50 C.F.R. § 17.11).

84. Special Rule for the Polar Bear, 73 Fed. Reg. 76249 (Dec. 4, 2008) (codified at 50 C.F.R. § 17.40(q)).

85. *In re* Polar Bear Endangered Species Act Listing, 818 F. Supp. 2d 240 (D.D.C. 2011).

86. Special Rule for the Polar Bear Under Section 4(d) of the Endangered Species Act, 78 Fed. Reg. 11766 (Feb. 20, 2013) (codified at 50 C.F.R. § 17.40(q)).

87. The potential for ESA litigation is greater for endangered species to which the 4(d) rule does not apply.

88. Telephone Interview with Participant US-L, *supra* note 76.

> wildlife corridors to allow migration of species upslope or into more northerly latitudes. The same with what we're seeing with sea turtles and critical habitats under the ESA. The process of recognizing the beaches in Florida that are currently critical for loggerhead sea turtle are going to be under water and what habitat is necessary to protect the species in a changing climate.[89]

This kind of consideration will likely only continue to grow and develop as agencies implement the Obama Administration's November 2013 executive order.

Another area that has been a focus of proactive ESA litigation with some emerging adaptation benefits is recovery plans for listed species under the ESA. For instance, following the settlement of litigation over its failure to issue a recovery plan for two species of corals listed, in part, due to climate change threats, the National Marine Fisheries Services has produced a draft recovery plan proposal.[90] A similar process is underway for the polar bear, albeit only prompted by the threat of litigation from groups such as the CBD.[91] The hope of advocacy groups is that these processes will set out meaningful adaptive actions for ensuring species protection in a changing climate, which may include specifying associated mitigation efforts to support such actions.

Beyond these ESA cases, tort actions seeking to impose liability on public authorities or major corporate emitters in the aftermath of disasters also have some connection to climate change adaptation. Suits targeting governmental actions or inaction—such as the litigation over the maintenance of flood protection measures brought against the Army Corps of Engineers in the aftermath of Hurricane Katrina[92]—often involve

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89. *Id.*

90. Carolina Bolado, *FWS Settles with Enviro Group over Fla. Coral Protection*, CENTER FOR BIOLOGICAL DIVERSITY (Sept. 13, 2013), http://www.biologicaldiversity.org/news/center/articles/2013/law360-09-13-2013.html; Allison Garrett, *NOAA Fisheries Files Draft Recovery Plan for Elkhorn and Staghorn Corals*, NOAA FISHERIES (Sept. 4, 2014), http://www.nmfs.noaa.gov/mediacenter/2014/09/04_09_draftrecoveryplanforelkhornandstaghorncorals.html.

91. Letter from Sarah Uhlemann, Senior Attorney, Ctr. for Biological Diversity, to Sally Jewell, Sec'y of the Interior, Dep't of the Interior, and Dan Ashe, Dir., U.S. Fish & Wildlife Serv. (May 15, 2013), *available at* http://www.biologicaldiversity.org/species/mammals/polar_bear/pdfs/NOI_PB_Status_Review_and_Recovery_Plan_5_15_13.pdf.

92. *In re* Katrina Canal Breaches Litig., 696 F.3d 436 (5th Cir. 2012) *rev'g* 673 F.3d 381 (5th Cir. 2012). In this unusual decision, the same three-judge panel that had initially ruled in favor of the plaintiffs reversed itself and found the Army Corp of Engineers was completely insulated from liability by a provision of the Federal Tort Claims Act called the "discretionary-function excep-

non-adaptive behavior. While these claims are not explicitly framed as climate change adaptation cases, they may have implications for adaptation regulation because climate change is expected to increase the frequency and severity of extreme weather events. These tort cases, or the potential for such litigation, can serve to make governments more likely to engage in proactive planning.

Similarly, the small body of nuisance cases that have been brought against major corporate emitters, such as auto manufacturers and power plants,[93] also has implications for the management of climate change impacts. Although these lawsuits are generally thought of as mitigation cases, given their focus on attributing liability for greenhouse gas emissions, they could also have adaptation implications if they serve as a compensation mechanism for losses associated with affected communities taking adaptive action (e.g., coastal retreat).[94]

To date, these cases have not achieved any notable successes, as none has proceeded to a merits determination. Moreover, with the Supreme Court's decision in *American Electric Power Co. v. Connecticut*—finding that nuisance cases under federal common law are displaced by the EPA's regulatory authority under the Clean Air Act—the possibilities for these cases obtaining such relief narrowed further.[95] Nonetheless, like the ESA cases, tort actions may serve as a vehicle for forging linkages between mitigation and adaptation by highlighting the need for strong mitigation action to avoid or minimize liability for future climate change impacts.

2. Emerging Cases Addressing Adaptation Planning

While the ESA and tort cases described in the previous section have implications for U.S. adaptation law and policy, newer cases around coastal hazards and disaster planning have a clearer focus on government management of predicted climate

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tion." Whether similar immunity will be granted to other government defendants in future liability claims remains unclear.

93. Comer v. Murphy Oil USA, 585 F.3d 855 (5th Cir. 2009); Native Village of Kivalina v. ExxonMobile Corp., 663 F. Supp. 2d 863 (N.D. Cal. 2009), *aff'd*, 969 F.3d 849 (9th Cir. 2012).

94. Byrne & Grannis, *supra* note 70, at 295–96.

95. 131 S. Ct. 2527, 2539 (2011); *see also* Hari M. Osofsky, *Litigation's Role in the Path of U.S. Federal Climate Change Regulation: Implications of* AEP v. Connecticut, 46 VAL. U. L. REV. 447 (2012); Hari M. Osofsky, AEP v. Connecticut*'s Implications for the Future of Climate Change Litigation*, 121 YALE L.J. ONLINE 101 (2011), *available at* http://yalelawjournal.org/forum/aep-v-connecticuts-implications-for-the-future-of-climate-change-litigation.

change impacts. These cases share much in common with the Australian adaptation litigation described further below given the concentration on the interpretation of existing legislation, regulatory measures and institutional responsibilities, and their capacity to extend to addressing climate change.

The first of these recent U.S. adaptation cases—*United States v. Miami-Dade County, Florida*—considers the ways in which climate change adaptation connects to a broader land-use planning dispute.[96] The case focused on Miami-Dade County's sewage discharges into public waters in violation of the Clean Water Act (CWA) and the Florida Air and Water Pollution Control Act.[97] The current filings are the latest round in longstanding litigation over these issues that resulted in consent decrees in 1994 and 1995.[98]

What connects this case to climate change adaptation is an intervention by the Biscayne Bay Waterkeeper and Judi Koslen, a Key Biscayne resident, under section 505 of the Clean Water Act.[99] Their complaint alleges not only that the county has repeatedly violated its consent decrees, but also that it is entering into a new consent decree that violates the public interest due to its failure to address climate change impacts.[100] Specifically, the June 2013 complaint in intervention claims that:

> The proposed Consent Decree is unfair, unreasonable and contrary to the public interest because:
>
> a. The draft Consent Decree's Capital Plan will not achieve or maintain compliance with CWA, primarily because it fails to address sea level rise and climate impacts that will, if not appropriately accounted for, cause major failures in the sewage collection and treatment system during its useful life. . . . Over time, these failures will prevent the WASD sewage collection and treatment system from operating properly and complying with the requirements of the Clean Water Act, Florida law, and its NPDES permits . . . .[101]

The federal district court for the Southern District of Florida ultimately denied intervenor Biscayne Bay Waterkeeper's motion to reopen the case, agreeing with the U.S. government that the consent decree had resolved the Clean Water Act viola-

96. No. 12-24400-FAM (S.D. Fla. May 9, 2014).

97. *Id.*

98. Complaint in Intervention at 4, U.S. v. Miami-Dade, No. 12-24400-FAM (S.D. Fla. June 25, 2013).

99. *Id.*

100. *Id.*

101. *Id.* at 7 (internal citations omitted).

tions at issue in the case.[102] However, the types of issues raised in this Florida-based case are not unique to Miami-Dade County. Coastal climate change impacts have been a focus of adaptation planning in many areas because they are the set of impacts for which the greatest levels of scientific certainty exist.[103] As such impacts worsen, many cities will face a wide array of core functions affected by climate change.[104] We predict that this case is simply the first in what is likely to be a series of state-court-based disputes over how localities are managing adaptation; as explored in the following section, the extensive Australian jurisprudence could serve as a model—both constructive and cautionary—for how these cases might unfold.

The second case example—on adaptation of energy infrastructure—began with a petition on natural hazard planning filed with the New York Public Service Commission by the Columbia University Sabin Center for Climate Change Law and a group of NGOs in December 2012 in the aftermath of Superstorm Sandy.[105] The Public Service Commission serves as the primary regulator of New York's utilities, which provide power throughout the state.[106] The petition asked the commission to "use its regulatory authority to require all utility companies within its jurisdiction to prepare and implement com-

102. Order Denying Motion To Reopen Case, U.S. v. Miami-Dade, No. 12-24400-MORENO (S.D. Fla. May 8, 2014).

103. *See* IPCC, *Climate Change 2007*, *supra* note 9, at 315, 317.

104. For an example of such cases, see *Residents for Sane Trash Solutions, Inc. v. U.S. Army Corp of Eng'rs*, No. 12 Civ. 8456 (PAC) (S.D.N.Y. July 10, 2014), *available at* https://cases.justia.com/federal/district-courts/new-york/nysdce/1:2012cv08456/404309/82/0.pdf.

105. Letter from Anne R. Siders, Assoc. Dir., Columbia Univ. Ctr. for Climate Change Law, et al. to Jaclyn A. Brilling, Sec'y, N.Y. State Pub. Serv. Comm'n (Dec. 12, 2012), *available at* https://web.law.columbia.edu/sites/default/files/microsites/climate-change/files/Publications/PSCPetitionNaturalHazardPlanning_0.pdf. The Columbia University Sabin Center for Climate Change Law is pursuing a similar strategy of seeking to inject climate change considerations into energy infrastructure planning in letters submitted to the Federal Energy Regulatory Commission (FERC) in October 2014. The Center has submitted two letters to FERC in response to the agency's issue of Notices of Intent (NOI) to Prepare an Environmental Impact Statement under NEPA with respect to two planned liquefied natural gas facilities proposed to be built on the coasts of Maine and Louisiana. The Center submits that FERC should consider the effects of sea level rise and climate change on these planned facilities—an issue not identified in either of the agency's NOIs. *See* Jennifer M. Klein, *FERC Should Consider Sea Level Rise When Evaluating New Natural Gas Facilities, Sabin Center Urges*, CLIMATE L. BLOG, (Oct. 27, 2014), http://blogs.law.columbia.edu/climatechange/2014/10/27/ferc-should-consider-sea-level-rise-when-evaluating-new-natural-gas-facilities-sabin-center-urges.

106. Letter from Anne R. Siders et al. to Jaclyn A. Brilling, *supra* note 105, at 5.

prehensive natural hazard mitigation plans to address the anticipated effects of climate change."[107] Specifically, the petition raised the concern that current planning largely focuses on short-term emergency response, without adequate consideration of longer-term adaptive planning.[108] The petition neatly illustrates how coastal management and disaster planning may intertwine in future U.S. litigation.

This case is especially interesting because it links energy and environmental planning in its call for public utilities to plan for hazard mitigation and disaster response under conditions of increased risk from climate change.[109] Although the petition focused in particular on New York and Superstorm Sandy, it raised issues with broader implications for utilities in areas most vulnerable to coastal and storm impacts. The petition explained:

> Extreme weather events threaten the reliable service of utilities to consumers throughout New York State. Hurricane Sandy, the most recent and devastating example in a series of storms affecting New York utilities, interrupted vital electrical, water, steam, and telecommunications services for over a million utility users throughout the state. Once interrupted, services may take weeks to reinstate, further exacerbating the human and economic costs of the storm. . . .
>
> While the severity of Hurricane Sandy may have been unique, its destructive effect on utility service is not. In 2011, Hurricane Irene left nearly 400,000 New York City residents without power. The Public Service Commission's 2011 Electric Reliability Performance Report confirms the connection between utility outages and storm events. . . .
>
> . . . Such outages occur at least in part because the critical infrastructure that supports New York utilities is vulnerable to storm surge and flooding.[110]

The petition was only the first step in this case. When Consolidated Edison (ConEd)—the largest utility in the State of New York—filed a petition with the Commission in January 2013 for changes to its rates, the Columbia University Sabin Center for Climate Change Law and other NGOs formally intervened and subsequently participated in the adjudicatory hearings that followed.[111] During the rate case litigation, a Storm Hardening and Resiliency Collaborative, including the coalition of academic centers and NGOs, formed to negotiate

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107. *Id.* at 1.

108. *Id.*

109. *Id.*

110. *Id.* at 1–2 (internal citations omitted).

111. Consol. Edison Co. of N.Y., No. 13-E-0030, at 6 (N.Y. Pub. Serv. Comm'n Feb. 21, 2014) (order approving electric, gas, and steam rate plans), *available at* http://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId={1714A09D-088F-4343-BF91-8DEA3685A614}.

terms of a settlement and to implement the settlement agreement.[112] The Collaborative included four working groups addressing: (1) storm hardening design standards; (2) alternative resiliency strategies; (3) natural gas system resiliency; and (4) risk assessment/cost benefit analysis.[113]

As a result of discussions in the design standards working group, ConEd adopted a new design standard of the latest FEMA 100-year floodplain elevation plus three feet of freeboard (FEMA+3) to protect its infrastructure in flood zones, which it will review every five years.[114] In its Order, the Commission noted that ongoing review of the standard is appropriate "in light of the rapid developments in climate science forecasts, and in federal, state, and city policies."[115]

The settlement agreement reached by the Collaborative was approved by the Commission on February 21, 2014.[116] It requires ConEd to implement capital programs and projects to "storm harden" and improve the resiliency of its electric, gas and steam systems in the face of anticipated climate change and sea level rise.[117] Fundamental to the settlement agreement is the notion that capital equipment should be designed, sited, and built to withstand the climate conditions that will exist at the end of its useful life, and not just at the beginning.[118] The Commission's Order also affirms the commitment of ConEd to undertake during 2014 a climate change vulnerability study encompassing adaptation risks such as rising heat and more severe storms.[119] This study is intended to provide a longer-range basis for ongoing review of design standards, such as the

112. *See* CONSOL. EDISON CO. OF N.Y., STORM HARDENING AND RESILIENCY COLLABORATIVE REPORT (2013), *available at* http://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId={E6D76530-61DB-4A71-AFE2-17737A49D124}.

113. *Id.* at 9.

114. Consol. Edison Co., No. 13-E-0030, at 63 (N.Y. Pub. Serv. Comm'n Feb. 21, 2014); *see also* CONSOL. EDISON CO. OF N.Y., *supra* note 112.

115. Consol. Edison Co., No. 13-E-0030, at 67 (N.Y. Pub. Serv. Comm'n Feb. 21, 2014).

116. *Id.*

117. Consol. Edison Co., No. 13-E-0300 (N.Y. Pub. Serv. Comm'n Dec. 31, 2013) (joint proposal), *available at* http://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId={3881B193-8115-4BA0-A01A-B8D373D59726}.

118. *See* CONSOL. EDISON CO. OF N.Y., *supra* note 112, at 6.

119. *Id.* at 33–34.

FEMA+3 floodproofing standard, and the Commission indicated that it "expect[ed] to revisit this issue."[120]

ConEd is complying with these requirements, with ongoing submissions on its efforts to improve preparedness and infrastructure and to assess climate vulnerability. It produced a Phase Two report in fall 2014 on its current and planned storm hardening and resiliency work that the Commission largely adopted on February 5, 2015.[121] On April 6, 2015, ConEd took the next step of submitting the scope and timeline portions of its climate vulnerability study. The submission explains that existing reports do not "address all the key weather and climate inputs that are required for Con Edison to review its design standards" and describes the steps that it will take to address these gaps.[122] It has requested a rate increase to cover these additional expenditures, which if approved would pass some of these costs of adaptation onto its customers (in the same way that utilities typically recoup infrastructure investments).[123]

Already, the ConEd Rate Case outcome is being hailed as "an historic decision that will serve as a nationwide model."[124] The infrastructure concerns that were the focus of the original 2012 petition and the subsequent rate case occur in many places around the United States. Similarly, the proposals developed through the work of the Collaborative and approved in the settlement agreement could apply in other states because they focus on core electricity infrastructure questions that are not spe-

120. Consol. Edison Co., No. 13-E-0030, at 67 (N.Y. Pub. Serv. Comm'n Feb. 21, 2014).

121. Consol. Edison Co., No. 13-E-0030, Order Adopting Storm Hardening and Resiliency Collaborative Phase Two Report Subject To Modifications, Feb. 5, 2015, http://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId={F44B0D0E-C519-4080-A89A-CD41B9BCFA42}.

122. Consol. Edison Co., No. 13-E-0030, Con Edison's Climate Change Vulnerability Study–Scope and Timeline, Apr. 6, 2015, http://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId={A064054B-1FDD-49FB-9F9D-A9A555D61148}.

123. Consol. Edison Co., No. 13-E-0030, Con Edison's Amended Storm Hardening and Resiliency Collaborative Phase Two Report, Nov. 14, 2014, http://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId={2137E970-DC34-4630-839C-DD2F08357F2C}; Bill Sanderson, *Con Edison Seeks To Increase City Residential Electric Rates*, N.Y. POST, Feb. 1, 2015, http://nypost.com/2015/02/01/con-edison-seeks-to-increase-city-residential-electric-rates.

124. Ethan I. Strell, *Public Service Commission Approves Con Ed Rate Case and Climate Change Adaptation Settlement*, CLIMATE L. BLOG (Feb. 21, 2014), http://blogs.law.columbia.edu/climatechange/2014/02/21/public-service-commission-approves-con-ed-rate-case-and-climate-change-adaptation-settlement.

cific to New York. Additional petitions filed by the Columbia University Sabin Center for Climate Change Law with the Federal Energy Regulatory Commission calling on the agency to consider future climate change impacts when reviewing proposals for new natural gas facilities in Maine and Louisana illustrate this potential.[125] Like the first complaint described, then, the petition and ConEd rate case decision may become an important model for future litigation over adaptive approaches for energy infrastructure in the U.S. context.

The third case highlighted indicates the possibility for the U.S. takings jurisprudence to interact more directly with climate change adaptation. The Fifth Amendment of the U.S. Constitution requires government assertions of eminent domain authority to be for "public use" and accompanied by just compensation. An extensive jurisprudence in the U.S. Supreme Court and other federal and state courts has interpreted this clause, at times in coastal contexts. Like some of the Australian cases described in the next Part, some past U.S. cases—with no explicit mention of climate change—have raised claims of regulatory takings in response to efforts by state and local authorities to restrict development in coastal areas. In both countries, the effects of regulatory takings litigation in this context have been primarily "maladaptive" by discouraging the adoption of proactive adaptation policies such as retreat from high risk areas. For example, the 1992 U.S. Supreme Court case *Lucas v. South Carolina Coastal Council* held (under relatively specific circumstances) that a coastal protection policy preventing Lucas from building on his land constituted a per se taking.[126]

While a number of policymakers and commentators have raised concerns about takings suits constraining climate change adaptation efforts, a 2013 New Jersey Supreme Court opinion, *Borough of Harvey Cedars v. Karan*, suggests that just compensation analyses that treat climate-adaptive action as a benefit may have the opposite effect.[127] This case involved a massive public-works project in which the Borough of Harvey

125. *See* Klein, *supra* note 105; Jennifer M. Klein, *FERC Directs LNG Facility Applicant To Disclose Climate Change Impacts, As Urged by Sabin Center*, CLIMATE L. BLOG (Nov. 26, 2014), http://blogs.law.columbia.edu/climatechange/2014/11/26/ferc-directs-lng-facility-applicant-to-disclose-climate-change-impacts-as-urged-by-sabin-center.

126. 505 U.S. 1003 (1992). For a discussion of legal tools available to facilitate retreat from at risk coastal areas, see ANNE SIDERS, COLUMBIA CTR. FOR CLIMATE CHANGE LAW, MANAGED COASTAL RETREAT: A LEGAL HANDBOOK ON SHIFTING DEVELOPMENT AWAY FROM VULNERABLE AREAS (2013).

127. 70 A.3d 524 (N.J. 2013).

Cedars exercised its power of eminent domain to take a portion of the beachfront property of Harvey and Phyllis Karan to construct a dune that connects with other dunes running the entire length of Long Beach Island in Ocean County. The dunes serve as a barrier-wall, protecting the homes and businesses of Long Beach Island from the destructive fury of the ocean.[128]

The parties agreed that the property had been partially taken and that under both the federal and state constitutions, just compensation was required.[129] However, the New Jersey Supreme Court held that the protective effects of the dune must be taken into account as part of the just compensation calculation to prevent the Karans from obtaining a windfall.[130] It accordingly reversed and remanded an earlier court decision granting the Karans $375,000 in compensation.[131]

This reversal by New Jersey's highest court both influenced this individual case and helped to spur additional litigation. The settlement of the case resulted in the Karans receiving $1 instead of the $375,000 they were set to receive before the Supreme Court reversal.[132] Meanwhile, New Jersey Governor Chris Christie signed an executive order which directed the acting state attorney general to begin legal proceedings to obtain the over 1,000 easements required to build dunes in the communities that suffered particularly severe impacts from Superstorm Sandy.[133]

Although this case occurs in the specific context of New Jersey, like the other exemplar cases, it has broader implications. The reasoning of the state Supreme Court could be applied in many other takings contexts where a government is using taken land to implement measures that will protect the rest of the land from climate change impacts. The Court found that the Appellate Division's use of the general-benefits doctrine in this case is at odds with contemporary principles of just-compensation jurisprudence. The jury was barred by the lower court from hearing evidence about potentially quantifiable benefits arising from the storm-protection project that increased

128. *Id.* at 526.

129. *Id.*

130. *Id.* at 544.

131. *Id.*

132. MaryAnn Spoto, *Harvey Cedars Couple Receives $1 Settlement for Dune Blocking Ocean View*, NJ.COM (Sept. 25, 2013, 1:21 PM), http://www.nj.com/ocean/index.ssf/2013/09/harvey_cedars_sand_dune_dispute_settled.html.

133. *Id.* For subsequent litigation by Long Beach property owners opposing these easements see *Carolan v. Township of Long Beach*, No. PWL 3379-14 (N.J. Super. Ct. Law Div., filed Nov. 5, 2014).

the value of the Karans's home. The New Jersey Supreme Court in contrast found that just compensation does not entitle a landowner to a windfall from a partial taking of property.

As noted above, Harvey Cedars condemned a portion of the Karans's seaside, oceanfront property to acquire a permanent easement for the construction and maintenance of a twenty-two-foot dune to replace an existing sixteen-foot dune. The new dune was part of a much larger shore-protection project to benefit all the residents of Harvey Cedars and Long Beach Island. Unquestionably, the benefits of the dune project extended not only to the Karans but also to their neighbors further from the shoreline. Yet, clearly the properties most vulnerable to dramatic ocean surges and larger storms are frontline properties, such as the Karans's. Therefore, the Karans benefitted to a greater degree than their westward neighbors. Without the dune, the probability of serious damage or destruction to the Karans's property increased dramatically over a thirty-year period.

A jury evidently concluded that the Karans's property decreased in value as a result of the loss of their panoramic view of the seashore due to the height of the dune. A willing purchaser of beachfront property would obviously value the view and proximity to the ocean. But it is also likely that a rational purchaser would place a value on a protective barrier that shielded his property from partial or total destruction. Whatever weight might be given that consideration, surely, it would be one part of the equation in determining fair market value.[134]

This analysis of fair market value is potentially ground breaking for coastal adaptation regulation in the United States because it internalizes the cost of damage from climate change and the value of preventing it. Takings suits often are brought to make regulatory measures too expensive for governments to pursue. The cost-internalization approach in *Karan* may significantly reduce the costs of just compensation, making adaptation-related eminent domain assertions and other measures vulnerable to regulatory takings claims more viable.

Even at this early stage, other courts have begun to follow the approach in *Karan*, reinforcing its potential influence. For example, in *Petrozzi v. City of Ocean City*, a 2013 New Jersey case also involving sand dunes and ocean views but in a different legal context, the appellate court specifically referenced the

134. *Karan*, 70 A.3d at 541 (internal citations omitted).

Karan approach to compensation.[135] It ordered that "the remand judge allow further proofs of valuation, consistent . . . with the admonition in *Borough of Harvey Cedars v. Karan* that 'the quantifiable decrease in the value of their property—loss of view—should [be] set off by any quantifiable increase in its value—storm-protection benefits[.]'"[136] This opinion in *Petrozzi* suggests that the *Karan* reasoning may be used by courts—in New Jersey and eventually perhaps in other states as persuasive authority—in various contexts where they have to assess compensation for harms suffered from climate adaptation measures.[137]

The fourth case focuses on state management of coastal waters, specifically Massachusetts's failure to address nitrogen pollution off of Cape Cod adequately.[138] The Conservation Law Foundation and Buzzards Bay Coalition brought an action in September 2011 under the Clean Water Act to compel the EPA to address this pollution.[139] Part of the petitioners' argument involved climate change.[140] Namely, the First Amended Complaint claims that Massachusetts's dated area plan did not adequately incorporate the ways in which climate change impacts water quality:

> 71. Since adoption of the 1978 Areawide Plan for Cape Cod, extensive scientific study developed by or available to EPA has demonstrated an ongoing and increasing trend of accelerated climate change and the impact of that change on affected embayments.
>
> 72. Federally-sponsored research has concluded that global temperatures are rising and, in turn, affect weather patterns and water quality. Climate science is unequivocal about the fact that, under the most probable future scenario, coastal ecosystems will be subjected to more strains than they would be without climate change.
>
> 73. Climate change will impact the seasonal timing of runoff to freshwater and coastal systems. Furthermore, climate science demonstrates that climate change creates uncertainty with regard to the range of possible future impacts of such change on coastal ecosystems.

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135. 78 A.3d 998, 1014 (N.J. Super. Ct. App. Div. 2013).

136. *Id.* (quoting *Karan*, 70 A.3d at 544).

137. For another example, see Joshua Alston, *NJ Wins Another Cheap Easement for Beach Dune* Project, LAW360 (July 1, 2014, 7:09 PM), http://www.law360.com/articles/553508/nj-wins-another-cheap-easement-for-beach-dune-project (discussing a July 2014 New Jersey Superior Court decision, *Borough of Harvey Cedars v. Grossier*, in which the court awarded homeowners less than they sought because of the benefits they received from the dune system).

138. Conservation Law Found., Inc. v. Jackson, 946 F. Supp. 2d 152 (D. Mass. 2013).

139. Complaint, 946 F. Supp. 2d 152 (No. 11-11657-MLW).

140. *Id.* ¶¶ 66–70.

> 74. The 1978 Areawide Plan fails to mention climate change.
>
> 75. Defendants' failures to annually approve or to require updates of the Areawide Plan means that the impact of climate change on water quality conditions has not been evaluated in the context of Section 208.[141]

In August 2013, the case survived a motion to dismiss on one of its four counts.[142] This count claims that the EPA had acted arbitrarily and capriciously in approving Massachusetts's State Revolving Funds given that the plan with which the funds must be consistent had not been updated since 1978.[143] The next month the EPA submitted a proposed plan of action and requested a stay on the basis that the Cape Cod Commission was updating the plan, which the district court approved in January 2014.[144] The EPA indicated in its submission that the Commission's work plan includes "consideration of climate change, sea level rise and storm surge."[145]

This case has similarities to many of the successful regulatory actions brought in a climate change mitigation context in that the lawsuit helped to spur needed governmental action. For example, the most well known U.S. mitigation case, *Massachusetts v. EPA*, was also focused on compelling EPA regulatory action.[146] At a smaller scale, California and several nongovernmental organizations sued San Bernardino County for not including climate change in its general plan; the governmental suit resulted in a settlement, in which—among other things—the County agreed to address climate change in its planning.[147] But unlike those cases, the incorporation of climate change into planning in this instance focuses on adaptation rather than mitigation, demonstrating an important parallel pathway for future federal regulatory suits.

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141. First Amended Complaint ¶¶ 71–75, 946 F. Supp. 2d 152 (No. 11-11657-MLW).

142. 946 F. Supp. 2d at 157.

143. *Id.* at 165.

144. Defendants' Report Regarding Future Proceedings, *Conservation Law Found. v. McCarthy*, No. 11-11657-MLW (D. Mass. Sept, 27, 2013), *available at* http://www.arnoldporter.com/resources/documents/CLF%20v%20McCarthy%20EPA%20proposal.pdf; Order, *Conservation Law Found.*, No. 11-11657-MLW (D. Mass. Jan. 27, 2014), *available at* http://www.arnoldporter.com/resources/documents/CLF%20v%20McCarthy%20stay%20order.pdf.

145. Defendants' Report Regarding Future Proceedings at 5, Conservation Law Foundation v. McCarthy, No. 11-cv-11657-MLW (Sept. 27, 2013).

146. 549 U.S. 497, 497–98 (2007).

147. *See* Order Regarding Settlement, People v. County of San Bernardino, No. CIVSS0700329 (Cal. Super. Ct. Aug. 28, 2007), *available at* http://ag.ca.gov/cms_pdfs/press/2007-08-21_San_Bernardino_settlement_agreement.pdf.

The final case examples—both of which were withdrawn before they proceeded to a full trial—raise questions relating to the implications of increasing climate change impacts for insurers and insureds. Although these particular lawsuits are not progressing, they may inspire similar claims in the future and so remain important examples of the potential for adaptation-related litigation to influence regulation and government behavior.

The first case involved a lawsuit filed by the Mississippi Insurance Department in the federal district court for the Southern District of Mississippi seeking to enjoin or stay rate increases introduced by FEMA for the National Flood Insurance Program.[148] As highlighted above, these premium rate increases were authorized by the Biggert-Waters Flood Insurance Reform and Modernization Act of 2012 but have since been delayed by Congressional passage of the Homeowner Flood Insurance Affordability Act of 2014. They are designed to reflect the true economic cost of flood risk to property in vulnerable areas, such as on the coastline and in floodplains.[149] It is widely recognized that the National Flood Insurance Program is not financially sustainable and that this unsustainability will only be exacerbated by the occurrence of more weather-related disasters.[150] The Mississippi Insurance Department's suit was based on an alleged failure by FEMA to undertake required studies, including an affordability study, prior to introducing the rate increases.[151] It sought injunctive relief along with a declaration that FEMA must undertake the required studies prior to making its rate determinations.[152]

In response, the U.S. government filed a motion to dismiss for lack of subject matter jurisdiction citing a lack of standing and that the Mississippi Insurance Department was not entitled to bring claims on behalf of affected Mississippi citizens.[153] The U.S. government also argued that an order from the court would not address the plaintiff's injuries as the relief sought is only available from Congress.[154]

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148. Miss. Ins. Dep't v. U.S. Dep't of Homeland Sec., No. 1:13-cv-379-LG-JMR (S.D. Miss. dismissed Apr. 14, 2014); Gerrard et al., *supra* note 23.

149. *See supra* notes 66–69 and accompanying text.

150. U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-13-283, HIGH-RISK SERIES: AN UPDATE 261 (2013), *available at* http://www.gao.gov/assets/660/652133.pdf.

151. *See* Gerrard et al., *supra* note 23.

152. *Id.*

153. *See id.*

154. *See id.*

In the latest development in this case, the Mississippi Insurance Department voluntarily withdrew its lawsuit following passage of the Homeowner Flood Insurance Affordability Act in early 2014.[155] The dismissal was without prejudice and the Mississippi Insurance Commissioner indicated that the agency will refile the lawsuit if implementation of the flood insurance reforms does not address affordability concerns.[156] How this dispute unfolds in coming years could substantially affect federal efforts to remove adaptation barriers posed by existing regulatory programs, such as the National Flood Insurance Program. The case also illustrates—on a much larger scale—the kinds of tensions illustrated in the Australian litigation described in the next part where present actions to reduce climate change vulnerability clash with the rights and expectations of property owners to maintain homes in at-risk coastal areas.

The sixth case example also raised the implications of climate change for the insurance industry, as well as for local and city governments with responsibilities for maintaining infrastructure that is vulnerable to adaptation risks. In *Illinois Farmers Insurance Co. v. Metropolitan Water Reclamation District of Greater Chicago*, several insurance companies sued the water reclamation district for greater Chicago and numerous other cities and local governments in Cook County, Illinois in a class action.[157] The insurers alleged that the failure of the defendants to implement reasonable stormwater management practices and to increase stormwater capacity resulted in increased payouts to the plaintiffs' insureds following heavy rains in April 2013, which caused sewer water to flood the insureds' properties. Among other factors, the insurance companies relied on the climate change-adjusted 100-year rainfall return

155. *Id.*

156. Miss. Ins. Dep't v. U.S. Dep't of Homeland Sec., No. 1:13-cv-379-LG-JMR (S.D. Miss. dismissed Apr. 14, 2014), *available at* http://www.arnoldporter.com/public_document.cfm?id=23661&key=11B1.

157. Complaint at 2–3, Ill. Farmers Ins. Co. v. Metro. Water Reclamation Dist. of Greater Chi., No. 2014-CH-06608 (Ill. Cir. Ct. dismissed June 4, 2014), *available at* http://www.arnoldporter.com/public_document.cfm?id=23667&key=18H3; *see also* Geoff Ziezulewicz, *Insurance Co. Sues Will County, 12 Towns over Flood Damage*, CHI. TRIB. (Apr. 29, 2014), http://articles.chicagotribune.com/2014-04-29/news/ct-flooding-lawsuit-bolingbrook-plainfield-tl-0501-20140429_1_will-county-flood-damage-lawsuit. A similar case is underway in Queensland, Australia involving damage to a resort which plaintiffs allege is the result of a poorly constructed stormwater drain installed by the local government. Skype Interview with Australian Participant 18 (Jul. 18, 2013). Part of the argument is that construction of the drain did not take into account the potential for increased rainfall as a result of changes in the climate. *Id.*

frequency predicted by the 2008 Chicago Climate Change Action Plan in asserting claims of negligent maintenance liability, failure to remedy known dangerous conditions, and regulatory takings.[158] The pleadings stated: "Th[e] defendant knew or should have known that climate change in Cook County has resulted in greater rainfall volume, greater rainfall intensity and greater rainfall duration than pre-1970 rainfall history evidenced, resulting in greater stormwater runoff . . . ."[159]

In June 2014, Farmers Insurance filed notices of dismissal of these claims. Announcing this withdrawal of the class action, a spokesperson for the insurance group stated: "We believe our lawsuit brought important issues to the attention of the respective cities and counties, and that our policyholders' interests will be protected by the local governments going forward."[160]

This case neatly illustrates the kind of liability dilemma that adaptation can present for state and local authorities as they interpret their planning authority—a theme already familiar to counterparts in Australia as the next part discusses. If the insurers' claim had progressed, the city of Chicago (ironically, one of the cities with the most advanced climate change planning) may have effectively been hoisted on the petard of its own adaptation plan. It is unclear exactly why the lawsuit was withdrawn. Some commentators have noted that the case faced numerous barriers to success with respect to liability, sovereign immunity, and public duty doctrine;[161] for instance, the court may have granted governmental immunity as the Fifth Circuit did in the flooding case brought by New Orleans residents against the Army Corp of Engineers following Hurricane Katrina.[162]

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158. *See* J. Wylie Donald, *Negligent Operation of a Storm Sewer: A New Theory of Climate Change Liability*, CLIMATE LAW. BLOG, May 2, 2014, http://www.climatelawyers.com/post/2014/05/02/Negligent-Operation-of-a-Storm-Sewer-A-New-Theory-of-Climate-Change-Liability.aspx.

159. Complaint ¶ 50, Ill. Farmers Ins. Co. v. Metro. Water Reclamation Dist. of Greater Chi., No. 2014-CH-06608 (Ill. Cir. Ct. dismissed June 4, 2014), *available at* http://www.arnoldporter.com/public_document.cfm?id=23667&key=18H3.

160. Robert McCoppin, *Insurance Company Drops Suits over Chicago-Area Flooding*, CHI. TRIB. (June 3, 2014), http://www.chicagotribune.com/news/local/breaking/chi-chicago-flooding-insurance-lawsuit-20140603-story.html. The spokesperson said the company does not intend to refile the suits.

161. *See, e.g.*, Hunter Book, *Farmers Insurance Withdraws Class Action Alleging Failure To Adapt to Climate Change*, CLIMATE LAW BLOG (June 16, 2014), http://blogs.law.columbia.edu/climatechange/2014/06/16/farmers-insurance-withdraws-class-action-alleging-failure-to-adapt-to-climate-change/comment-page-1.

162. *See supra* note 92 and accompanying text.

Regardless, lawyers, engineers, and others have noted that the lawsuit—and the potential for others like it—could have a wide range of impacts for adaptation. On the one hand, the litigation risk that this suit illustrates could serve to reinforce the need for governments not only to plan for climate change impacts, but also to follow through with effective implementation actions. This might include swifter action by municipalities to upgrade their stormwater infrastructure, as well as encouraging engineers and planners to adopt forward-looking projections of climate change effects in infrastructure design standards. In this way, the Farmers Insurance suit might augment the effects of litigation like the ConEd Rate Case by focusing attention on the climate-readiness (or lack thereof) of infrastructure. However, equally possible is that litigation of this kind drives decision-making paralysis and retreat from proactive adaptation action. One article on the lawsuit quotes attorney, Joanne Zimolzak, a partner with law firm McKenna Long and Aldridge, saying:

> Municipalities looking at something like this might think, "Does it make better sense for me not to adopt some type of a climate action plan?" [But] [i]f you had the knowledge and you failed to adopt a climate plan, then maybe that opens you up to a different kind of liability.[163]

If this lawsuit prompts similar cases in the future, they will help clarify the liability of governments with respect to failures in their adaptation planning and implementation efforts, with important follow-on effects for adaptive responses.

II. A GLIMPSE AT THE U.S. FUTURE?: THE ROLE OF ADAPTATION LITIGATION IN AUSTRALIA

This Part traces the ways in which the Australian experience might serve as a model for U.S. adaptation litigation. The underlying geography of Australia makes it especially vulnerable to climate change and extreme weather events. That vulnerability has shaped government efforts and litigation addressing adaptation, with both more extensive than those in the United States.

Like that of the United States, Australia's adaptation planning tends to take place at state and local scales. Australia—with a federalist system of government much like that of the United States—divides regulatory powers over matters of environmental protection, land use planning, and disaster

163. Evan Lehmann, *Insurance Co. Sues Ill. Cities for Climate Damage*, CLIMATEWIRE (May 14, 2014), http://www.eenews.net/stories/1059999532.

management between the national government and each of the six states.[164] In general, decisions on land use and planning fall within the jurisdiction of the states, with significant decision-making powers also delegated to local government authorities (referred to as councils).[165] Litigation over adaptation issues in Australia has thus interacted most directly with state and local governmental responses to adaptation risks, particularly risks posed by coastal hazards and climate-related disasters. This makes the Australian litigation especially useful as a model for the emerging U.S. litigation over state and local adaptation planning.

Although litigation over adaptation in Australia is extensive, its regulatory role in spurring behavior has been mixed. While some cases have led to more proactive planning actions, especially to deal with coastal climate change hazards, others have resulted in a substantial regulatory backlash. Both dimensions of this experience offer lessons for the evolution of adaptation lawsuits in the United States.

A. CLIMATE CHANGE IMPACTS

Australia's comparatively more developed regulation and jurisprudence on adaptation emerge from its particular physical vulnerability to impacts. Australia is known as a land of climatic extremes,[166] with a propensity for extreme weather that is inherent in its geography. A vast arid center traps heat whereas ocean waters surrounding the island continent intensi-

164. *See generally* Jacqueline Peel & Lee Godden, *Australian Environmental Management: A 'Dams' Story*, 28 U. NEW S. WALES L.J. 668 (2005) (describing the history of Australian environmental management). In addition to its six states, Australia also has two self-governing territories. *See About Australia*, AUSTL. GOV'T, http://www.australia.gov.au/about-australia/our-government/state-and-territory-government (last visited Apr. 21, 2015). Territory legislation may be overridden by federal law. *See id.*

165. *Id.* at 675–76.

166. The early twentieth century poet, Dorothea Mackellar, famously described Australia as "a sunburnt country" with "droughts and flooding rains." Dorothea Mackellar, *My Country*, *in* THE LITERATURE OF AUSTRALIA 388 (Nicholas Jose ed., 2009). The preciousness, and danger, associated with water is also a motif that appears throughout the cultural creation myths of Australia's Aboriginal peoples, embodied by the figure of the Rainbow Serpent. In Dreamtime stories, the Rainbow Serpent signifies fertility and increase, and is responsible for bringing regenerating rains, as well as storms and devastating floods when angered by transgressions of cultural law. OODGEROO NOONUCCAL & KABUL OODGEROO NOONUCCAL, THE RAINBOW SERPENT (1988); *see also Indigenous Weather Knowledge: The Rainbow Serpent*, AUSTL. GOV'T, BUREAU OF METEOROLOGY, http://www.bom.gov.au/iwk/climate_culture/rainbow_serp.shtml (last visited Apr. 21, 2015).

fy the impacts of sea level rise, powerful storms, and flooding rains.[167] The average annual rainfall across the continent is low but also extremely variable, with rainfall intensity highest in the tropical north and some coastal areas.[168] Australia's largely hot, dry climate means that wildfires are a frequent occurrence and the native vegetation has developed characteristics that promote the spread of fire.[169]

The effects of this geography and naturally harsh climate are amplified by patterns of settlement in Australia. More than 85 percent of Australia's population of 23 million lives within 30 miles of the coast and is on the front line of climate change impacts such as sea level rise, coastal inundation, and more intense storms.[170] Residential development pushes out from the major urban centers such as Sydney, Melbourne, and Brisbane into bushland areas exposing residents to high fire risk.[171] Inland, agriculture faces persistent problems of low rainfall and drought, which has led to a reliance on irrigation, but also exacerbated problems of soil salinity and acidity.[172]

Dealing with extreme weather is a fact of life in Australia and even a matter of some national pride. During the heatwave experienced by most of the country in January 2013, Birdsville locals in the State of Queensland—where temperatures reached 122°F—grinned and bore the heat despite their rubber "thongs" (flip-flops) melting on contact with the road.[173] In recent years, however, Australians have become less complacent about ex-

167. ROSS GARNAUT, THE GARNAUT CLIMATE CHANGE REVIEW 106–07 (2008), *available at* http://www.garnautreview.org.au/index.htm.

168. *Id.* at 107–09.

169. *Bushfire in Australia*, CSIRO, http://www.csiro.au/Organisation-Structure/Divisions/Ecosystem-Sciences/BushfireInAustralia.aspx (last updated Mar. 7, 2014).

170. *Our Resilient Coastal Australia*, CSIRO, http://www.csiro.au/Organisation-Structure/Flagships/Wealth-from-Oceans-Flagship/ORCA.aspx (last updated Nov. 21, 2013).

171. Michael Buxton et al., *Vulnerability to Bushfire Risk at Melbourne's Urban Fringe: The Failure of Regulatory Land Use Planning*, 49 GEOGRAPHICAL RES. 1, 4–5 (2010); *see also* KEVIN HENNESSY ET AL., COMMONWEALTH SCI. & INDUS. REASEARCH ORG., CLIMATE CHANGE IMPACTS ON FIRE-WEATHER IN SOUTH-EAST AUSTRALIA 11–12 (2005), *available at* http://www.climatechange.vic.gov.au/__data/assets/pdf_file/0020/73208/Fireweatherclimatechange2005.pdf.

172. Pichu Rengasamy, *World Salinization with Emphasis on Australia*, 57 J. EXPERIMENTAL BOTANY 1017, 1017–18 (2006).

173. Marissa Calligeros, *Thongs Melt on the Ground as Birdsville Withers in the Heat*, BRISBANE TIMES (Jan. 9, 2013), http://www.brisbanetimes.com.au/environment/weather/thongs-melt-on-the-ground-as-birdsville-withers-in-the-heat-20130108-2ceub.html.

treme weather with an increase in its frequency and severity. The first signs of change in public attitudes came with the "one in a thousand year drought" that stretched over more than a decade (1997–2009), ravaging agriculture and leading to severe water shortages especially in the southeast of the country.[174] Public concern over the "Millennium drought" and about climate change grew in concert in the mid-2000s, peaking in late 2006–early 2007.[175] Heading into the 2007 Australian federal election, climate change policy was a major issue in the campaign and helped propel Kevin Rudd—who famously declared climate change the "great moral, environmental and economic challenge of our age"[176]—to the Prime Ministership.

Since 2007, Australia has experienced a multitude of other extreme weather events that have left few parts of the continent untouched. Several disasters stand out, including the 2009 "Black Saturday" bushfires in the State of Victoria, extensive floods in Queensland in 2010–2011 and again in 2013, Severe Tropical Cyclone Yasi in 2011 that rivaled Hurricane Katrina in its intensity and destructive force, devastating bushfires during early 2013 in New South Wales, Victoria, Tasmania, and again in New South Wales in October 2013, and searing heatwaves blanketing most of the country across the summers of 2012–2013 and 2013–2014.[177]

The increasing frequency and intensity of extreme weather events has been documented by the Australian Climate Council (formerly the Climate Commission) in a series of scientific reports.[178] In its 2013 report, *The Critical Decade: Extreme*

174. THE CLIMATE INST., CLIMATE OF THE NATION 2013: AUSTRALIAN ATTITUDES ON CLIMATE CHANGE 1, 4 (2013), *available at* http://www.climateinstitute.org.au/verve/_resources/TCI_ClimateOfTheNation2013_web.pdf.

175. *Id.* at 1. This coincided with other events such as the release of Al Gore's climate change documentary, AN INCONVENIENT TRUTH (Paramount Classics 2006), Sir Nicholas Stern's review undertaken for the British government on the Economics of Climate Change, NICHOLAS STERN, STERN REVIEW: THE ECONOMICS OF CLIMATE CHANGE (2006), and the Fourth Assessment Report of the Inter-governmental Panel on Climate Change, IPCC, *Climate Change 2007*, *supra* note 9.

176. Kevin Rudd, Opinion, *Rudd Speech to the United Nations*, SYDNEY MORNING HERALD (Sept. 24, 2009), http://www.smh.com.au/federal-politics/political-opinion/rudd-speech-to-the-united-nations-20090924-g3nn.html.

177. WILL STEFFEN, CLIMATE COMM'N, THE ANGRY SUMMER 1–2 (2013), *available at* http://coolaustralia.org/wp-content/uploads/2013/09/Angry Summerreport-March2013.pdf.

178. *See About*, CLIMATE COUNCIL, https://www.climatecouncil.org.au/about-us. The Council was formerly a government-funded body known as the Climate Commission. The Commission was disbanded by Prime Minister Tony

Weather, the Commission concluded that "[t]he severity and frequency of many extreme weather events are increasing due to climate change" and that "[t]here is a high risk that extreme weather events like heatwaves, heavy rainfall, bushfires and cyclones will become even more intense in Australia over the coming decades."[179] Another special report issued in early 2014 by the Council on intense heatwaves in Australia found that climate change is making heatwaves more frequent and severe, with higher temperatures, longer durations, and an earlier start to the season.[180] Indeed, during the decade from 2000 to 2009, heatwaves reached levels that were not anticipated to occur until 2030.[181] Prominent Australian climate scientist and author of the heatwaves report, Professor Will Steffen, remarked that Australia "seem[s] to be on the firing line for a lot of this stuff. I think in terms of what actually matters for people and infrastructure, we could be the canary in the coal mine."[182]

Given its already highly variable climate and susceptibility to extreme weather events, predictions of the impacts of climate change for Australia are relatively severe compared with other developed countries.[183] A 2013 report on *Recent Trends in and Preparedness for Extreme Weather Events* produced by the Australian Senate Committee on Environment and Communications summarized some of the principal projected impacts of climate change for Australia,[184] as follows:

Abbott's government following success at the federal election in September 2013. An appeal to the public by outgoing commissioners saw unprecedented donations that will allow continued functioning of the body as an independent source of information and analysis on climate change impacts for Australia. *Id.*

179. CLIMATE COMM'N, *supra* note 12, at 5; *see also* PRODUCTIVITY COMM'N, BARRIERS TO EFFECTIVE CLIMATE CHANGE ADAPTATION, REPORT NO. 59, AT 41 (2012) [hereinafter PRODUCTIVITY COMM'N], *available at* http://www.pc.gov.au/inquiries/completed/climate-change-adaptation/report/climate-change-adaptation.pdf.

180. *Press Release: Interim Findings on Heatwaves*, CLIMATE COUNCIL (Jan. 17, 2014), http://www.climatecouncil.org.au/interim-heatwaves.

181. *Id.*

182. Siegel, *supra* note 26.

183. *See* Kevin Hennessy et al., *Australia and New Zealand*, *in* CLIMATE CHANGE 2007: IMPACTS, ADAPTATION AND VULNERABILITY 507, 509 (2007).

184. ENV'T AND COMMC'NS REFERENCES COMM., PARLIAMENT OF AUSTL., RECENT TRENDS IN AND PREPAREDNESS FOR EXTREME WEATHER EVENTS (2013) [hereinafter RECENT TRENDS], *available at* http://www.aph.gov.au/Parliamentary_Business/Committees/Senate/Environment_and_Communications/Completed_inquiries/2010-13/extremeweather/report/~/media/wopapub/senate/committee/ec_ctte/completed_inquiries/2010-13/extreme_weather/report/report.ashx. The Committee received 344 submissions

> • Significant increases in temperature extremes this century for all regions of Australia, with projections for increasing frequency and intensity of heatwaves;
>
> • Decreased rainfall in southern and eastern Australia during the cooler months, increased drought threat for southern Australia and more frequent extreme and record rainfall events;
>
> • With warmer and drier conditions, particularly over southern and eastern Australia, an increase in fire weather risk, with more days of extreme risk and a longer fire season;
>
> • More intense tropical cyclones moving further south; and
>
> • Rising sea levels exacerbating coastal flooding and erosion from storm surges.[185]

Serious ecological and social impacts for the continent are also predicted as a result of climate change. Significant ecosystem damage is projected as early as 2020, including mass coral bleaching in the iconic Great Barrier Reef World Heritage Area due to rising sea temperatures and ocean acidification.[186] In addition, the physical climatic and weather changes predicted to result from global warming would have consequential effects on ecosystems, such as biodiversity loss and changing habitat ranges for species.[187] Socio-economic impacts are expected in areas such as water supply, agriculture and fisheries, the provision and maintenance of infrastructure, and human health.[188] Moreover, with an increasing frequency and severity of extreme

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including from the main scientific and climate related organizations in Australia such as the Bureau of Meteorology, the CSIRO, and the Climate Commission (now the Climate Council). *Id.* at 2, 10.

185. *Id.* at 27–59; *see also* PRODUCTIVITY COMM'N, *supra* note 179, at 42–52; WILL STEFFEN & LESLEY HUGHES, CLIMATE COMM'N, THE CRITICAL DECADE 2013: CLIMATE CHANGE SCIENCE, RISKS AND RESPONSES 52–59 (2013), *available at* http://pandora.nla.gov.au/pan/136923/20130919-1415/climatecommission.gov.au/wp-content/uploads/The-Critical-Decade-2013_Website.pdf.

186. *See* Hennessy et al., *supra* note 183, at 527 box 11.3.

187. AUSTL. CTR. FOR BIODIVERSITY, MONASH UNIV., BIODIVERSITY AND CLIMATE CHANGE 5–9 (2008), *available at* http://www.garnautreview.org.au/CA25734E0016A131/WebObj/04Biodiversity/$File/04%20Biodiversity.pdf; WILL STEFFEN ET AL., AUSTRALIA'S BIODIVERSITY AND CLIMATE CHANGE 1–6 (2009), *available at* http://www.environment.gov.au/system/files/resources/eab369d6-76f9-46c8-beb4-aaae8ece112e/files/biodiversity-vulnerability-assessment.pdf.

188. RECENT TRENDS, *supra* note 184, at 61–93; *see also* THE CLIMATE INST., COMING READY OR NOT: MANAGING CLIMATE RISKS TO AUSTRALIA'S INFRASTRUCTURE 3–4 (2012), *available at* http://www.climateinstitute.org.au/verve/_resources/TCI_ComingReadyorNot_ClimateRiskstoInfrastructure_October2012.pdf.

weather, financial costs associated with insuring for, and recovering from, such events are projected to rise substantially.[189]

B. GOVERNMENT ACTION TO ADDRESS ADAPTATION

Australia's vulnerability to climate change, paired with increasing evidence of the likelihood of severe social, economic, and environmental impacts, has led to heightened federal, state, and local government attention over the past decade to the question of adaptation risk management, as compared to the United States. To date, much of the activity undertaken by governments has centered on assessments of vulnerability to climate change impacts (including regional vulnerability and vulnerability to specific impacts like sea level rise),[190] government reports and inquiries,[191] and the release of broadly-framed policy documents, such as the 2007 National Climate Change Adaptation Framework[192] and the Proposed National Adaptation Assessment Framework.[193] There is no national legislation

189. DELOITTE ACCESS ECON., BUILDING OUR NATION'S RESILIENCE TO NATURAL DISASTERS 19 (2013). Deloitte Access Economics found the total economic cost of natural disasters in Australia in 2012 alone exceeded $6 billion, with the expectation that these costs will double by 2030 and reach $23 billion per year by 2050, even without any consideration of the potential impact of climate change. The increase is primarily due to increased exposure as a result of denser populations, economic growth, and asset concentration. *Id.* For an attempt to estimate the economic costs of climate change for Australia, see GARNAUT, *supra* note 167, at 245–75.

190. *See, e.g.*, *OzCoasts Climate Change: Sea Level Rise Maps*, GEOSCIENCE AUSTL., http://www.ozcoasts.gov.au/climate/sd_visual.jsp (last visited Apr. 21, 2015). The Australian government's national science organization, the CSIRO, has also undertaken several vulnerability assessments for different sectors as part of its Climate Adaptation Flagship program. *Climate Adaptation*, CSIRO, http://www.csiro.au/organisation-structure/flagships/climate-adaptation-flagship (last visited Apr. 21, 2015).

191. PRODUCTIVITY COMM'N, *supra* note 179; H.R. STANDING COMM. ON CLIMATE CHANGE, WATER, ENV'T & THE ARTS, MANAGING OUR COASTAL ZONE IN A CHANGING CLIMATE: THE TIME TO ACT IS NOW (2009), *available at* http://www.aph.gov.au/parliamentary_business/committees/house_of_representatives_committees?url=ccwea/coastalzone/report.htm [hereinafter HOUSE STANDING COMM.].

192. DEPT. OF CLIMATE CHANGE & ENERGY EFFICIENCY, COUNCIL OF AUSTL. GOV'TS, NATIONAL CLIMATE CHANGE ADAPTATION FRAMEWORK (2007), *available at* http://www.environment.gov.au/system/files/resources/eaaf0350-9781-4006-957c-a5801fadc466/files/nccaf.pdf. The framework focuses on building knowledge and capacity through research to enhance adaptive capacity and improve resilience. It touches only lightly on governance issues.

193. DEP'T OF INDUSTRY, CLIMATE CHANGE, SCI., RES. & TERTIARY EDUC., AUSTL. GOV'T, *Climate Adaptation Outlook* (2013), *available at* http://www.climatechange.gov.au/climate-change/adapting-climate-change/climate-adaptation-outlook (last visited Apr. 21, 2015).

specifically dealing with adaptation or associated risk management.[194] However, as in the United States, several states have climate adaptation plans or other policy initiatives dealing with particular adaptation concerns (e.g., management of coastal hazards) that are applicable within their jurisdictions.[195]

As an issue that cuts across different levels of governance and involves many different regulatory areas (e.g., coastal management, land use planning, disaster response, and emergency management), adaptation in Australia has raised similar questions to those in the United States over the respective roles and responsibilities of different governments at the federal, state, and local levels.[196] As in the United States, the overall trend has been to cast adaptation as the responsibility of state and local governments.[197] A key aspect of the "localized" nature of adaptive action in Australia is the concentration of control over land use and planning at the state level, with state governments in turn delegating many decision-making powers to local governments; this state and local authority over land use planning parallels that in the United States.[198]

Under the Council of Australian Government's (COAG) 2012 framework on government *Roles and Responsibilities for*

194. Brian J. Preston, *The Influence of Climate Change Litigation on Governments and the Private Sector*, 2 CLIMATE L. 485 (2011).

195. *See, e.g.*, DEPT. OF ENVT. & HERITAGE PROT., QUEENSL. GOV'T, DRAFT COASTAL MANAGEMENT PLAN (2014), *available at* http://www.ehp.qld.gov.au/coastalplan/pdf/coastal-management-plan.pdf; VICT. GOV'T, VICTORIAN CLIMATE CHANGE ADAPTATION PLAN (2013), *available at* http://www.climatechange.vic.gov.au/__data/assets/pdf_file/0006/158640/4493_DSE_Climate_Change_Adaptation_Plan_WEB.pdf; *see also* ANDREW MACINTOSH ET AL., LIMP, LEAP OR LEARN? DEVELOPING LEGAL FRAMEWORKS FOR CLIMATE CHANGE ADAPTATION PLANNING IN AUSTRALIA 6 (2013), *available at* http://www.nccarf.edu.au/sites/default/files/attached_files_publications/Macintosh_2013_Spatial_planning_instruments_adaptation_Final.pdf (discussing the role of local governments and the federal government in climate change adaptation).

196. *See* Robin Kundis Craig, *Adapting to Climate Change: The Potential Role of State Common-Law Public Trust Doctrines*, 34 VT. L. REV. 781, 796 (2010) (discussing an adaptive management approach); Ruhl, *supra* note 5.

197. *See, e.g.*, PRODUCTIVITY COMM'N, *supra* note 179, at 58 ("[M]ost climate change adaptation occurs at a local level through the actions of individuals, businesses and communities in response to locally specific climate change impacts."); *see also* Lee Godden et al., *Law, Governance and Risk: Deconstructing the Public-Private Divide in Climate Change Adaptation*, 36 UNIV. NEW S. WALES L.J. 224 (2013); Preston, *supra* note 194, at 485.

198. SELECT COUNCIL ON CLIMATE CHANGE, COUNCIL OF AUSTL. GOVTS., ROLES AND RESPONSIBILITIES FOR CLIMATE CHANGE ADAPTATION IN AUSTRALIA 6–9 (2012) [hereinafter COAG], *available at* http://coag.gov.au/node/509 (select "Roles and Responsibilities for Climate Change Adaptation" hyperlink).

Adaptation, the primary responsibility for ensuring effective regulation and the incorporation of climate change considerations into decision-making thus lies with state and local governments.[199] In many parts of Australia, local governments have "taken the lead in developing adaptation planning responses."[200] In contrast, the federal government has fulfilled more general roles of information provision and research support.[201] The COAG framework indicates the federal government is also expected to "[p]rovide leadership on national adaptation reform," which may encompass cooperative development of "a consistent approach in adaptation responses, where there is a need."[202]

As a general matter, the overarching environmental and planning laws applicable in each of the Australian states do not contain explicit requirements to take climate change into account in land use decisions.[203] Instead these laws have broadly framed objectives such as encouraging "ecologically sustainable development" (ESD), seeking to achieve "ecological sustainab[ility]," or avoiding "significant effects" on or from the environment.[204] However, policy instruments and guidance materials that supplement the main planning legislation often in-

199. *Id.* The Council of Australian Governments is a cooperative intergovernmental forum with representatives from the federal government, each of the state and territory governments, and the president of the Local Government Association of Australia. *About COAG*, COUNCIL OF AUSTL. GOVTS., http://www.coag.gov.au/about_coag (last visited Apr. 21, 2015). It meets once or twice a year to discuss and propose national policy reforms of national significance. *Id.* COAG documents are not binding on participating governments but often lay out policy frameworks to guide cooperative intergovernmental activities and may serve as the basis for legislation. *Id.*

200. MACINTOSH ET AL., *supra* note 195, at 6.

201. *Id.*

202. COAG, *supra* note 198, at 5–6. Frequent calls have been made, for example, for the federal government to develop planning tools such as nationally consistent standards or methodologies regarding sea level rise, as well as statutory liability shields for local and state government decision-making involving long term climate change risks. *See* HOUSE STANDING COMM., *supra* note 191, at xx (Recommendation 21); MACINTOSH ET AL., *supra* note 195, at 6.

203. PRODUCTIVITY COMM'N, *supra* note 179, at 173. An exception is the *Sustainable Planning Act 2009* (Qld) in Queensland discussed *infra* note 270. In Victoria, the *Climate Change Act 2010* (Vic) requires decision-makers to "have regard to climate change" for certain decisions but this consideration does not extend to the state's main land use laws. PRODUCTIVITY COMM'N, *supra* note 179, at 173.

204. *See* Jacqueline Peel, *Ecologically Sustainable Development: More Than Mere Lip Service?*, 12 AUSTRALASIAN J. NAT. RESOURCES L. & POL'Y 1, 6–8 (2008). ESD is a central element of Australian environmental law and has been included—most usually as an objective—in a wide range of state environmental, planning, and land use legislation. *Id.* at 3, 7–8.

clude specific directions to consider climate change adaptation risks in planning and development decisions.[205] These policies are usually formulated with respect to particular hazards (e.g., coastal climate change risks and flooding).

Recent disasters, such as the Black Saturday bushfires in Victoria and the Queensland floods of 2010–2011, have driven some reconsideration of standard design approaches such as the "1 in 100 year" standard for flood-proofing of development or requirements for vegetation management in fire prone areas. For instance, in the wake of the Black Saturday bushfires which destroyed 2133 homes, burned 430,000 hectares of land, and claimed 173 lives,[206] the State of Victoria overhauled its planning requirements applicable to the management of wildfire risks in land use planning.[207] These include a new *Bushfire Management Overlay* applicable to areas with the highest fire risk, which triggers the need for planning permission for certain developments and requires that new development implements wildfire protection measures such as vegetation management that allows a "defendable space" around properties.[208]

While general forward planning for adaptation risks is beginning to emerge in a piecemeal fashion, coastal hazard management remains at the heart of Australian adaptation regulation and is the area with the most developed policy requirements. In several jurisdictions, state coastal policies in-

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205. For an overview of these policies, see MEREDITH GIBBS & TONY HILL, COASTAL CLIMATE CHANGE RISK – LEGAL AND POLICY RESPONSES IN AUSTRALIA 6–10 (2011), *available at* http://www.environment.gov.au/climate-change/adaptation/publications/coastal-climate-change-risk (select "Coastal Climate Change Risk–Legal and Policy Responses in Australia" hyperlink).

206. 2009 VICT. BUSHFIRES ROYAL COMM'N, FINAL REPORT: SUMMARY (2010), *available at* http://www.royalcommission.vic.gov.au/finaldocuments/summary/PF/VBRC_Summary_PF.pdf; Rachel Naylor, *Planning To Mitigate the Impact of Bushfires in Victoria*, 27 AUSTL. ENV'T REV. 328 (2012).

207. *See* ST. GOVT. OF VICT., VICT. PLANNING PROVISIONS, STATE PLANNING POLICY FRAMEWORK cl. 13.05-1 (2013), *available at* http://planningschemes.dpcd.vic.gov.au/schemes/vpps/13_SPPF.pdf (aiming to "assist to strengthen community resilience to bushfire"). This is to be achieved by "priority[zing] the protection of human life over other policy considerations" and applying the precautionary principle when assessing bushfire risks. *Id.*

208. Naylor, *supra* note 206, at 329; ST. GOVT. OF VICT., *supra* note 207. This response remains the exception rather than the norm. More commonly disasters are followed by public inquiries that generally make recommendations for improving warning systems, emergency management preparedness, and, in some cases, also preventative measures relating to land use, but largely avoid considering how climate change might exacerbate risks in the future. See Tim Bonyhady, *The Law of Disasters*, *in* ADAPTATION TO CLIMATE CHANGE: LAW AND POLICY 265–79 (Tim Bonyhady et al. eds., 2010) for a discussion of examples.

clude (or did include until recently) planning benchmarks for future sea level rise drawing on international scientific assessments.[209] These planning benchmarks require a certain level of sea level rise (for instance 0.8 meters (2.6 feet) above 1990 mean sea levels by 2100)[210] to be factored into land use and planning decisions affecting coastal areas. Some state coastal planning policies have been in place for more than two decades,[211] but the majority have been developed since 2008.[212] This emergence coincided with a number of cases in state courts and planning tribunals directly addressing the question of whether decision-makers were obliged to consider climate change impacts on proposed developments in vulnerable coastal areas under general land use planning laws.[213]

More recently, however, changes in state governments in favor of conservative political parties have seen moves in a number of eastern seaboard states in Australia to wind back environmental and climate change related regulations, including planning benchmarks for sea level rise, as part of a broader campaign to reduce "green tape" and associated constraints on development.[214] The removal or watering down of these adaptation-related policies has tended to broaden the already wide discretion available to decision-makers regarding the extent to which climate change risks are taken into account and the weight given to them in the planning process. The resulting potential for inconsistency and "de facto policy-making"[215] has

209. PRODUCTIVITY COMM'N, *supra* note 179, at 175 tbl.9.1 (summarizing the different benchmarks adopted by states). Some states such as New South Wales had benchmarks in place but have recently suspended their operation pending the development of new policies. *Id.*

210. VICT. COASTAL COUNCIL, VICTORIAN COASTAL STRATEGY 2008 13, at 36 (2008), *available at* http://www.vcc.vic.gov.au/assets/media/files/VCCCoastalStrategyfinal.pdf. The Coastal Strategy is in the process of being updated but endorses the 0.8 meters by 2100 benchmark of the 2008 document. *See* VICT. COASTAL COUNCIL, DRAFT VICTORIAN COASTAL STRATEGY 2013, at 16 (2013), *available at* http://vcc.vic.gov.au/assets/media/files/Draft_VCS-2013.pdf.

211. South Australia, for example, has had coastal planning policies in place since the early 1990s. *See* Tim Bonyhady, *How Australia Once Led the World*, 36 MONASH U. L. REV. 54 (2010).

212. *See* GIBBS & HILL, *supra* note 205, at 17–28.

213. *See, e.g.*, *Walker v Minister for Planning* [2007] NSWLEC 741; *see also* Peel & Godden, *supra* note 27.

214. *See* PRODUCTIVITY COMM'N, *supra* note 179, at 175 tbl.9.1; *see also, e.g.*, Rachel Walmsley, *'One-Stop-Shop' Plans Would Wind Back 30 Years of Legal Protection for the Environment*, ABC (Sept. 3, 2014), http://www.abc.net.au/environment/articles/2014/09/03/4079497.htm.

215. GIBBS & HILL, *supra* note 205, at 15.

opened up opportunities for the courts to shape the regulatory process in the area of adaptation and land use planning. At the same time, these shifts and divergences have created uncertainty over the liability exposure of state and local decision-makers that fail to plan for climate change, particularly in coastal areas.

C. ADAPTATION LITIGATION

The litigation in Australia dealing with adaptation issues has focused on state and local regulatory measures.[216] All of the adaptation litigation to date has been brought in state courts and tribunals, raising questions as to the interpretation and application of state and local laws and policies, which vary considerably from jurisdiction to jurisdiction. In a salient difference from the United States, Australian states have established specialist courts and tribunals to hear environmental, planning and land use disputes.[217] These specialist courts have judicial and non-judicial members with planning and environmental law expertise, and frequently have relaxed standing requirements and more flexible costs rules than generalist courts.[218] Cases taken before these courts and tribunals may either involve judicial review (review of the legality of the decision and compliance of the decision-making procedure with statutory requirements) or, in many cases, merits review (a de novo assessment of the applicable facts and law where the court "stands in the shoes of the primary decision-maker").[219] Appeals from specialist environmental courts lie to a higher-level generalist court in the state court system. Key state envi-

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216. *See infra* Part II.C.1; *see also* Preston, *supra* note 194.

217. Examples include the Land and Environment Court in New South Wales, the Planning and Environment Court in Queensland, and the Environment, Resources and Development Court in South Australia. *See infra* Part II.C.1; *see also* GIBBS & HILL, *supra* note 205, at 66–84. In Victoria, there is no specialist environmental court. *About VCAT: Who We Are*, VICT. CIVIL & ADMIN. TRIBUNAL, http://www.vcat.vic.gov.au/about-vcat/who-we-are-0 (last visited Apr. 21, 2015). Instead, an administrative tribunal, the Victorian Civil and Administrative Tribunal, hears a range of planning and environmental cases. *Id.*

218. *See, e.g.*, Justice N.R. Bignold, *NSW Land and Environment Court—Its Contribution to Australia's Development of Environmental Law*, 18 ENVTL. & PLAN. L.J. 256, 259–62 (2001); Justice Mahla L. Pearlman, *The Role and Operation of the Land and Environment Court*, 37 L. SOC'Y J. 58, 58, 60 (1999).

219. Peter Cane, *Judicial Review and Merits Review: Comparing Administrative Adjudication by Courts and Tribunals*, *in* COMPARATIVE ADMINISTRATIVE LAW 426–48 (Susan Rose-Ackerman & Peter L. Lindseth eds., 2010).

ronmental courts, like the New South Wales Land and Environment Court (LEC) have been recognized as major contributors to the development of environmental law in Australia.[220] These courts have also played an active role in hearing and deciding cases raising adaptation concerns.[221]

Australian adaptation-related case law now encompasses numerous decisions that address a range of climate change impacts,[222] from the likelihood of decreased rainfall in southern Australia[223] to that of increased fire and flood risk in other parts of the country.[224] By far the most commonly addressed issue in the case law, however, has been sea level rise and associated coastal hazards such as inundation, more intense storms, and erosion.[225] The reasons for this focus are obvious given the concentration of Australia's population and infrastructure along the coast.[226] Coastal areas—favored by Australian retirees—also have rapidly growing populations that intensify land use in the coastal zone and increase human and infra-infrastructure exposure to climate change risks.[227]

The following sections examine three key areas of Australia's adaptation jurisprudence. The first assesses the extensive Australian case law on coastal impacts. A central question addressed in early adaptation litigation in Australia was the extent to which general land use and environmental laws at the state level allowed for future climate change impacts, particularly sea-level rise and coastal inundation, to be taken into account in decisions on development. The development of state and local policies around planning for coastal and other adaptation risks has seen a concentration in more recent case law on

220. Bignold, *supra* note 218; Pearlman, *supra* note 218.

221. *See, e.g.*, Bignold, *supra* note 218.

222. *See* Peel, *supra* note 24.

223. *Alanvale Pty Ltd & Anor v S. Rural Water & Ors* [2010] VCAT 480 (applying the precautionary principle to refuse a groundwater extraction licence given uncertainties surrounding the long term availability of groundwater resources). The potential for reduced rainfall as a consequence of climate change was one of the matters considered by the Tribunal in the case. *Id.*; *see also Paul v Goulburn Murray Water Corp. & Ors* [2010] VCAT 1755.

224. *See* cases discussed *infra* Part II.C.1.

225. *See, e.g.*, Peel & Godden, *supra* note 27 (discussing cases on these hazards and the likely future increase in such hazards).

226. HOUSE STANDING COMM., *supra* note 191, at 1.

227. BARBARA NORMAN ET AL., SOUTH EAST COASTAL ADAPTATION (SECA): COASTAL URBAN CLIMATE FUTURES IN SE AUSTRALIA FROM WOLLONGONG TO LAKES ENTRANCE 2–5, 36 (2013), *available at* http://www.nccarf.edu.au/sites/default/files/attached_files_publications/Norman_2013_SECA_Coastal_urban_climate_futures.pdf.

how these requirements are to be interpreted in assessing the acceptability of projects in "at risk" areas. The second discusses emerging case law dealing with newer adaptation concerns of flood and fire risk that have been highlighted by large-scale weather-related disasters such as the Queensland floods and the Black Saturday Bushfires. The final section looks at how proactive adaptation planning suits interact with litigation and concerns over liability for climate change harms. This includes the emergence of private, common law actions as property owners seek to hold governments accountable for their actions or inaction in addressing climate change risks.

As the following sections explore in depth, the litigation around adaptation issues in Australia forms an ongoing dialogue among governments, courts, private property owners, and other stakeholders over what constitutes acceptable forms of development for a climate-changed future and where responsibility for taking protective action should lie. This dialogue provides an important example for the United States as U.S. adaptation litigation evolves.

1. Adapting to Coastal Impacts

Beginning in the mid-2000s, Australia witnessed several high-profile adaptation cases dealing with coastal climate change risks.[228] These decisions were regularly cited by our Australian interview participants as the most significant cases in terms of their influence on adaptation regulation. Overall though, the regulatory change brought about by Australian climate change litigation addressing coastal impacts has been incremental and evolutionary in nature rather than transformative. Courts have not sought to assume the mantle of policymakers by specifying new planning standards such as benchmarks for future sea level rise or other adaptation risks. Instead, utilizing conventional avenues of statutory interpreta-

228. *E.g.*, *Rainbow Shores Pty Ltd v Gympie Regional Council & Ors* [2013] QPEC 26; *Minister for Planning v Walker & Ors* [2008] NSWCA 224; *Gippsland Coastal Board v South Gippsland Shire Council & Ors* [2008] VCAT 1545; *Walker v Minister for Planning* [2007] NSWLEC 741; *Northcape Properties Pty Ltd v District Council of Yorke Peninsula* [2007] SAERDC 50. Online judgments can be obtained, free of charge, from http://www.austlii.edu.au. Cases in other coastal jurisdictions, such as Western Australia, have not been as high-profile. Western Australia only recently revised its sea level rise benchmark from 0.38 metres by 2100 to 0.9 metres over a 100 year planning timeframe to 2110. GIBBS & HILL, *supra* note 205, at 13; W. AUSTL. PLANNING COMM'N, STATE COASTAL PLANNING POLICY: STATE PLANNING POLICY NO. 2.6, at 14 (2013), *available at* http://www.planning.wa.gov.au/dop_pub_pdf/SPP2.6_Policy.pdf.

tion and focusing on procedural decision making requirements, the courts, together with policymakers, have participated in a co-evolutionary process that has guided the understanding of novel climate change-related regulatory provisions, as well as setting important parameters for further policy development and decision-making on coastal climate change risk management. The following section summarizes the principal coastal climate change cases and analyzes the ways in which they have interacted with regulatory behavior.

High-profile court decisions on coastal climate change risks began to emerge in Australia in 2007 around the same time as public concern over climate change was at its height. One of the earliest decisions was the 2007 judgment of the South Australian Environment, Resource and Development Court (ERDC) in *Northcape Properties Pty Ltd v District Council of Yorke Peninsula*.[229] The case involved a merits review appeal of the local council's decision refusing consent for the subdivision of a large parcel of land near Marion Bay on the Yorke Peninsula.[230] The proposal was covered by a Development Plan—a planning instrument under South Australian planning legislation—that governed coastal development and sought "[t]o encourage development that is located and designed to allow for changes in sea level rise due to natural subsidence and probable climate change during the first 100 years of the development."[231] The ERDC upheld the local government's refusal of the subdivision citing the proposal's failure "to make adequate provision for the inland retreat of the foreshore and dunes and associated native vegetation over the next 100 years."[232] Although this decision—affirmed on appeal to the South Australian Supreme Court[233]—made no explicit mention of climate change, it signaled that local planning controls making reference to sea level rise would be given serious judicial consideration and duly applied where supported by expert evidence of future coastal erosion. The rulings quickly "caught the attention" of coastal councils around the country.[234] As one of our interviewees summed up the litiga-

229. *See Northcape Properties* [2007] SAERDC 50; *see also* Bonyhady, *supra* note 211, at 66–68 (describing Commissioner Mosel's decision to reject Northcape's development proposal).

230. *Northcape Properties* [2007] SAERDC 50, ¶ 1.

231. *Id.* ¶ 26 (quoting Objective 11 of the proposed land division).

232. *Id.* ¶ 44.

233. *Id.* ¶ 28; Bonyhady, *supra* note 211, at 67.

234. Skype Interview with Participant A10 (May 8, 2013); *see also* HOUSE STANDING COMM., *supra* note 191, at 155–57 (noting that both the Council and Supreme Court credited expert evidence predicting coastal erosion).

tion: "The judge ruled that the impact of climate change was not a possibility, it was expected, and this particular development at Marion Bay, if the projected sea level rises and other impacts were to eventuate, it would impact directly on that site."[235]

Around the same time as the *Northcape* case was being decided by the ERDC, a very similar land use challenge was under consideration by the New South Wales LEC in the case of *Walker v Minister for Planning*.[236] Like the *Northcape* case, the *Walker* litigation involved a large residential development proposal located in a low-lying coastal area.[237] The applicant's sought judicial review of the government's decision to grant a "concept plan" approval for the development, citing the failure of the Planning Minister and his Department to give consideration to climate change and the potential for increased flooding risk on the site as a result of sea level rise.[238] The legislation under which the decision was made contained no mention of climate change but did include a statutory objective calling for the encouragement of ecologically sustainable development (ESD), as well as a reference to considering the "public interest" in decision-making.[239] Justice Biscoe of the LEC ruled in favor of the applicants, finding that ESD was an implied mandatory consideration for decision-making and should have led to the Minister evaluating the impacts of climate change for flooding on the site.[240] The judge emphasized the gravity of climate change risks, stating: "Climate change presents a risk to the survival of the human race and other species. Consequently, it is, a deadly serious issue."[241]

The force of Justice Biscoe's decision in the *Walker* case was lessened by subsequent rulings of the New South Wales Court of Appeal that adopted a narrower construction of the planning legislation and the role of ESD principles in assessing

235. Skype Interview with Participant A10 (May 8, 2013).

236. *Walker v Minister for Planning* [2007] NSWLEC 741.

237. *Id.* ¶¶ 1–3.

238. *Id.* ¶ 2.

239. The encouragement of ESD is one of the objects of the *Environmental Planning and Assessment Act 1979* (NSW) s 5A. *Walker* [2007] NSWLEC 741, ¶ 12. ESD is defined in the planning legislation by reference to section 6(2) of the *Protection of the Environment Administration Act 1991* (NSW), which elaborates the concept in terms of ESD principles such as the precautionary and inter-generational equity principles. *Environmental Planning and Assessment Act 1979* (NSW) s 4(1).

240. *Walker* [2007] NSWLEC 741, ¶¶ 45–46, 174.

241. *Id.* ¶ 161.

the public interest.[242] Nonetheless, the Appeal Court did not question Justice Biscoe's characterization of climate change flood risks,[243] and made *obiter* comments suggesting that in the future it was quite possible that ESD principles would be seen "as so plainly an element of the public interest" that a failure to consider them would be grounds for declaring a decision invalid.[244] In subsequent cases, these statements by the Court of Appeal have provided avenues for decision-makers to find that ESD principles are a relevant consideration in determining the public interest and for taking account of climate change risks in that context.[245]

According to our interviewees, the *Walker* litigation has had a number of important influences on the landscape of adaptation regulation in Australia. Its principal impact has been the institution of a broader interpretation of statutory language calling for the encouragement of ESD and consideration of "the public interest"[246] to cover coastal climate change risks such as

242. This was largely on the basis of the Court's concern that the boundaries of judicial review needed to be carefully observed so as not to stray impermissibly into the area of merits review. *Minister for Planning v Walker* (2008) 161 LGERA 423, 449, 451–54. Special leave to appeal to the High Court from the Court of Appeal's decision was sought and refused. *Id.* at 455 (refusing an objector appeal from the development approval because of the approval of the concept plan).

243. The Court of Appeal agreed with the primary judge that consideration of the precautionary and inter-generational equity principles would "almost inevitably" have required a consideration of climate change flood risk. *Id.*

244. *Id.* at 454. The Court of Appeal also remarked that it was "somewhat surprising and disturbing that the Director-General's report" to the Minister on the project did not discuss ESD principles "and that the Minister did not postpone his decision until he had done so." *Id.* at 455. It went on to find that since ESD principles were not considered by the Minister at the concept approval stage it would be necessary to address them when final development approval was sought for the project. *Id.*

245. *See, e.g.*, *Aldous v Greater Taree City Council* [2009] NSWLEC 17, ¶¶ 23–26, 78 (discussing *Walker* litigation and denying applicant's challenge that the council failed to consider mandatory coastal erosion evidence); *Barrington - Gloucester - Stroud Preservation Alliance Inc v Minister for Planning & Infrastructure* [2012] NSWLEC 197, ¶ 170 (quoting *Walker* and rejecting the submission that there was no obligation to consider ESD principles).

246. Under the current section 79C of the *Environmental Planning and Assessment Act 1979* (NSW), which governs decision-making on development applications in the state, a consent authority is required to take into consideration various matters including "the public interest." *Environmental Planning and Assessment Act 1979* (NSW) s 79C(1)(e). The New South Wales government is planning an overhaul of the State's planning laws that would see the *Environmental Planning and Assessment Act 1979* (NSW) replaced with a Planning Bill. *See Focus: The NSW Planning Bill – Part II – Development Assessment*, ALLENS LINKLATERS (Oct. 14, 2013), http://www.allens.com.au/pubs/env/foenv14oct13.htm. As part of the reforms it is proposed to limit the

sea level rise and the potential for increased flooding. The LEC's *Walker* decision thus has played "an important role in people taking future climate change impacts into account when they're making planning decisions."[247] *Walker* "changed the way that these things are processed, or at least the information that is considered."[248] In addition, in 2009, the New South Wales government issued a *Sea Level Rise Policy Statement* (since suspended) that provided specific sea level rise benchmarks to be used in identifying at risk areas for development subject to coastal climate change hazards.[249]

Another case often cited as having played an influential role in the introduction of adaptation concerns to coastal development planning is the Victorian *Gippsland Coastal Board* case.[250] Like the *Northcape* case, this litigation saw a planning tribunal—in this instance, the Victorian Civil and Administrative Tribunal (VCAT)[251]—refusing consent for a coastal development on various grounds, including threats to the develop-

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categories of development for which a full merits assessment is required and to qualify the public interest criterion to evaluate issues relating to the economic benefits of a development. *Id.*

247. Interview with Participant A1, in Melbourne, Austl. (Mar. 7, 2013).

248. Skype Interview with Participant A14 (May 23, 2013).

249. The *Sea Level Rise Policy Statement* was incorporated in 2010 into the *Coastal Risk Management Guide* applicable to local government planning decisions. *See* DEP'T OF ENV'T, CLIMATE CHANGE & WATER NSW, NSW SEA LEVEL RISE POLICY STATEMENT (2009); DEP'T OF ENV'T, CLIMATE CHANGE & WATER NSW, COASTAL RISK MANAGEMENT GUIDE 1–2, 5 (2010). This Guide was cited in 2010 by the *Guidelines for Preparing Coastal Zone Management Plans* under the *Coastal Protection Act 1979* (NSW), which incorporated the sea level rise benchmarks from the 2009 statement. *See* DEP'T OF ENV'T, CLIMATE CHANGE & WATER NSW, GUIDELINES FOR PREPARING COASTAL ZONE MANAGEMENT PLANS 1, 25 (2010). As part of "stage one" reforms to coastal management that came into effect in 2013, the New South Wales government has declared that the sea level rise benchmarks are no longer state policy, leaving local governments in limbo as to the standard to apply. *See Sea Level and Coasts*, NSW ENV'T & HERITAGE, http://www.climatechange.environment.nsw.gov.au/impacts-of-climate-change/Sea-level-and-coasts (last visited Apr. 21, 2015); *Coastal Reforms Overview*, NSW ENV'T & HERITAGE, http://www.environment.nsw.gov.au/coasts/stage1coastreforms.htm (last visited Apr. 21, 2015).

250. *Gippsland Coastal Board v South Gippsland SC (No 2)* [2008] VCAT 1545; *see* Preston, *supra* note 194, at 500–01.

251. In the Victorian planning system, VCAT is empowered to conduct merits review of planning decisions. VIC CIVIL & ADMIN. TRIBUNAL, TAKING IT TO VCAT: A GUIDE TO PLANNING AND ENVIRONMENTAL DISPUTES AT VCAT 5 (2012), *available at* http://www.vcat.vic.gov.au/system/files/taking_it_to_vcat_planning_and_environment.pdf. These decisions do not formally create binding precedents. MATTHEW GROVES & H. P. LEE, AUSTRALIAN ADMINISTRATIVE LAW: FUNDAMENTALS, PRINCIPLES AND DOCTRINES 98 (2007).

ment posed by future sea level rise.[252] In fact, the site involved, while certainly likely to be severely impacted by sea level rise and inundation as a result of climate change, already had marginal development value due to its low-lying nature, waterlogging and frequent flooding.[253] The case was thus not one that on its facts necessitated a consideration of climate change risks in order to reach the conclusion that the proposed land was not suitable for residential development.[254] Despite this, and the lack of an express reference to climate change matters in the planning legislation,[255] VCAT extensively canvassed issues of sea level rise and coastal inundation. It found that a general requirement in the applicable planning law directing a decision-maker to consider "any significant effects which the responsible authority considers the environment may have on the use or development" was sufficiently broad to encompass the influence of climate change on the proposed development.[256]

The Tribunal's decision in the *Gippsland Coastal Board* case was undergirded by the precautionary principle, which plays a central role in Australian environmental law as one of the foundational principles of ESD.[257] Under Australian law, the precautionary principle requires that "where there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation."[258] The

252. *Gippsland Coastal Board* [2008] VCAT 1545, ¶¶ 46–48, 53.

253. *Id.* ¶ 3.

254. Interview by Lisa Caripis, Research Assoc. for Jacqueline Peel, with Participants A19 and A20, in Melbourne, Austl. (July 25, 2013).

255. The applicable legislation, the *Planning and Environment Act 1987* (Vic), requires a responsible authority to consider "any significant effects . . . the environment may have on the use or development." *Planning and Environment Act 1987* (Vic) s 60(1)(e). The relevant *State Planning Policy Framework* also guided decision-makers to balance conflicting objectives and interests in favor of "sustainable development for the benefit of present and future generations." VIC PLANNING PROVISIONS, STATE PLANNING POLICY FRAMEWORK cl. 10.04 (2014). VCAT noted that unlike the *Northcape* cases, it had "neither the benefit of specific planning provisions or policy relating to coastal recession or sea level rise." *Gippsland Coastal Board* [2008] VCAT 1545, ¶ 36.

256. *Gippsland Coastal Board* [2008] VCAT 1545, ¶ 36 (referring to *Planning and Environment Act 1987* (Vic) s 60(1)(e)).

257. *See generally* JACQUELINE PEEL, THE PRECAUTIONARY PRINCIPLE IN PRACTICE: ENVIRONMENTAL DECISION-MAKING AND SCIENTIFIC UNCERTAINTY 190–92 (2005) (describing precaution as a guiding principle supporting the goal of ESD).

258. This formulation of the precautionary principle is the one adopted in intergovernmental policies such as the ECOLOGICALLY SUSTAINABLE DEV. STEERING COMM., NATIONAL STRATEGY FOR ECOLOGICALLY SUSTAINABLE

Tribunal interpreted this principle to require "a gauging of the consequences and extent of intergenerational liability arising from a development or proposal and if found to be warranted, appropriate courses of action to be adopted to manage severe or irreversible harm."[259] In this context, VCAT ruled it was "no longer sufficient to rely only on what has gone before to assess what may happen again in the context of coastal processes, sea levels or for that matter inundation from coastal or inland storm events."[260] Notwithstanding uncertainty as to the magnitude and measurability of sea level rise and other climate change impacts affecting the site, the Tribunal was of the view that "rising sea levels are to be expected."[261] Its application of the precautionary principle led it to conclude that increasing storm severity and rising sea levels consequent upon climate change created "a reasonably foreseeable risk of inundation to the subject land," which strengthened VCAT's overall conclusion that the land was unsuitable for development.[262]

Shortly after the *Gippsland Coastal Board* decision was handed down, the Victorian government released its 2008 Victorian Coastal Strategy that establishes a general policy requirement to apply the precautionary principle, as well as more specific sea level rise benchmarks for coastal development.[263] While it does not seem that the VCAT decision directly led to the new policy (if it did then, as one interviewee put it, "it was a damn quick reaction"[264]), there was still a very clear complementarity between the approach pursued in the case law and the evolution of regulatory requirements for coastal adaptation

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DEVELOPMENT pt. 1 (1992) (providing guiding principles), and the INTERGOVERNMENTAL AGREEMENT ON THE ENVIRONMENT § 3.5.1 (1992).

259. *Gippsland Coastal Board* [2008] VCAT 1545, ¶ 41.

260. *Id.* ¶ 40. This acknowledgment of the difficulties of relying on historical data and previous flood model predictions in assessing future climate change risks corresponds with calls in the literature to transcend historical forms of data analysis and associated decision-making in adaptation. *See* Robin Kundis Craig, *"Stationarity Is Dead" — Long Live Transformation: Five Principles for Climate Change Adaptation Law*, 34 HARV. ENVTL. L. REV. 9, 35, 68–69 (2010) (noting that historical data will be of limited use and asserting that decision-makers should retain flexibility as an adaptation strategy).

261. *Gippsland Coastal Board* [2008] VCAT 1545, ¶ 42.

262. *Id.* ¶ 48.

263. VIC COASTAL COUNCIL, VICTORIAN COASTAL STRATEGY pt. 2.1 (2008). This Strategy is directly referenced as a consideration by the VIC PLANNING PROVISIONS, STATE PLANNING POLICY FRAMEWORK cl. 13.01-1 (2014), applicable to all planning schemes in the state.

264. Interview by Lisa Caripis, Research Assoc. for Jacqueline Peel, with A20, in Melbourne, Austl. (July 25, 2013).

measures in Victoria.[265] This dialogue between VCAT and government policymakers appears to have continued over the course of subsequent cases, which have given greater clarity and substantive content to policy requirements for sea level rise planning and coastal hazard vulnerability assessment at a project level.[266] Overall, VCAT is playing a part in the regulatory process for coastal adaptation in Victoria through "regularly applying the new policies and the requirement for coastal vulnerability assessments in practical terms."[267]

The "mainstreaming" of a consideration of coastal adaptation risks in planning decisions brought about by decisions such as the *Northcape*, *Walker* and *Gippsland Coastal Board* cases is evident in the more recent case of *Rainbow Shores Pty Ltd v Gympie Regional Council & Ors* decided by the Queensland Planning and Environment Court in 2013.[268] The Queensland Planning and Environment Court is probably the most conservative of the specialist state environmental courts in Australia that have dealt with adaptation-related litigation. In previous cases, it has emphasized that it is not a planning au-

265. The *Victorian Coastal Strategy* is supported by further guidance documents issued by the Victorian Planning Minister in late 2008. *See* DEP'T OF PLANNING & CMTY. DEV., PRACTICE NOTE 53: MANAGING COASTAL HAZARDS AND THE COASTAL IMPACTS OF CLIMATE CHANGE 2 (2012) (noting that a Ministerial Direction required councils to consider present and future risks, effects on sea level, and projected coastal hazards).

266. See *Myers v South Gippsland SC* [2009] VCAT 1022, ¶ 32; *Myers v South Gippsland SC (No. 2)* [2009] VCAT 2414, ¶¶ 14–19, 32–34; *Ronchi v Wellington SC* [2009] VCAT 1206, ¶ 17; *Seifert v Coloc-Otway SC* [2009] VCAT 1453, ¶¶ 44–45; *Owen v Casey CC* [2009] VCAT 1946, ¶¶ 8–19; *W & B Cabinets v Casey CC* [2009] VCAT 2072, ¶¶ 23, 28, 39–40; *Taip v East Gippsland SC* [2010] VCAT 1222, ¶¶ 61–72; *Cadzow Enterprises Pty Ltd v Port Phillip CC* [2010] VCAT 634, ¶¶ 27–37, 50–51; *Bock v Moyne SC* [2010] VCAT 1905, ¶¶ 7–8, 15–16; *Cooke v Greater Geelong CC* [2010] VCAT 60, ¶¶ 68–78; *D'Abate v East Gippsland SC* [2010] VCAT 1320, ¶¶ 20–34; *Printz v Glenelg SC* [2010] VCAT 1975, ¶¶ 70–88. Not all commentators see VCAT's role as having been positive in this regard. *See, e.g.*, Andrew Macintosh, *Coastal Climate Hazards and Urban Planning: How Planning Responses Can Lead to Maladaptation*, 18 MITIGATION STRATEGIES FOR GLOBAL CHANGE 1035, 1048 tbl.3 (2013) (displaying VCAT's inconsistencies).

267. HELEN GIBSON, CLIMATE CHANGE AND LOW LYING AREAS: CONSIDERATIONS IN VCAT 10 (2009).

268. [2013] QPEC 26. This decision builds upon a longer history of case law in the State of Queensland that has assessed the relevance of climate change in evaluating development proposals. *See Charles & Howard Pty Ltd. v Redland Shire Council* [2006] QPEC 95; *Charles & Howard Pty Ltd. v Redland Shire Council* [2007] QCA 200; *Daikyo (N. Qld.) Pty Ltd. v Cairns City Council* [2003] QPEC 22; *Mackay Conservation Grp. Inc v Mackay City Council* [2005] QPEC 94; *Copley v Logan City Council & Anor* [2012] QPEC 39; *see also* Mark Baker-Jones, *Conventionalising Climate Change by Decree*, 30 ENV'T & PLAN. L.J. 371 (2013).

thority and that it is not the Court's responsibility to set design standards for development susceptible to coastal climate change risks.[269] Despite this, the relevant statutory framework applicable in Queensland allows the Court scope to consider climate change matters in planning and development processes[270] and, indeed, "leaves no scope for climate change denial."[271] In its consideration of a proposal for a large integrated resort and residential community on the Inskip Peninsula near Rainbow Beach on the southeast Queensland coast, a key matter for the Court was the suitability of the coastal side of the peninsula for residential development given hazards posed by erosion, storm surge, and potential inundation in the future due to climate change. Ultimately, Judge Rackemann of the Planning and Environment Court reached the conclusion that it was preferable to "pla[n] for the future"[272] and disallow a development that would be highly exposed to storm surge inundation with climate change.[273] Summarizing the decision, one commentator remarked that the case "marks a critical point in planning law. It confirms that planning decision-makers must take into

269. *Daikyo (N. Qld.) Pty Ltd.* [2003] QPEC 22, ¶ 22.

270. For instance, the *Sustainable Planning Act 2009* (Qld) expressly mentions climate change in several provisions, including those relating to the legislation's objective "to seek to achieve ecological sustainability" and to the conduct of decision-making processes. *Sustainable Planning Act 2009* (Qld), ss 3, 5(1)(a)(ii), 5(1)(c)(i); 11(c)(iv). These references are made in terms of the effects of development for climate change, which suggests more of a mitigation focus, though this has not prevented their extension by the Court to the adaptation context. This general reference was, until recently, buttressed by a State Planning Policy on Coastal Protection, which required communities and development to be protected from coastal hazards (identified in coastal hazard maps), including those stemming from climate change and projected sea level rise. DEP'T OF ENV'T. & HERITAGE PROT., STATE PLANNING POLICY 3/11: COASTAL PROTECTION 12–18 (2012). The policy specified a sea level rise factor of 0.8 meters by 2100. *Id.* at 12. The conservative state government that came to power in early 2012 suspended the operation of this policy in October 2012 and is in the process of developing a new Coastal Management Plan, which deletes references to climate change in favour of "climate variability," although it does include a soft policy "principle" that "impacts of climate variability including a projected rise in sea level of 0.8m to 2100 and an increase in cyclone maximum potential intensity by 10 per cent are considered in managing the coast." DEP'T OF ENV'T & HERITAGE PROT., QUEENSL. GOV'T DRAFT COASTAL MANAGEMENT PLAN 5 (2013).

271. Michael Rackemann, Senior Listings Judge of the Planning & Env't Court of Queensland, Judge of the Dist. Court of Queensland, *Environmental Dispute Resolution—Lessons from the States* 19 (Mar. 8, 2013).

272. Skype Interview with Participant A5 (Mar. 26, 2013).

273. *Rainbow Shores Pty Ltd.* [2013] QPEC, ¶ 360.

account projections of sea level rise when assessing coastal development."[274]

While the legislative and policy framework governing Australian coastal adaptation cases varies from state to state, some clear themes emerge from the jurisprudence that have shaped regulation in the field and provide potential pathways for the United States to follow. These include an emphasis on the intergenerational consequences of future climate change for present development in coastal areas; endorsement of a precautionary approach to assessment of the hazards posed by sea level rise and coastal climate change risks; and recognition that general legislative requirements for ESD, or for the consideration of the public interest or significant environmental effects, can be construed to require an accounting for climate change risks without the need for a specific statutory reference to climate change. The intervention of the courts into coastal planning decisions also seems to have injected an element of practicality into the consideration and application of rigid regulatory standards such as "0.8 meters by 2100" sea level rise benchmarks. Courts and tribunals, especially those conducting merits review, have the capacity to tailor development decisions to take account of relevant contextual factors, such as the expected life of buildings in a region, the extent of coastal hazards, and existing protective measures such as seawalls. While some have criticized the variety of decision making outcomes reached by Australian courts in coastal cases as evidence of inconsistency,[275] such diversity could also be seen as the product of more flexible and "adaptive" practices of decision-making.

2. Responding to Increasing Disaster Risks

While adaptation litigation and regulation in Australia has been dominated, to date, by coastal climate change hazards, there is evidence of growing concern with other adaptation risks, particularly flood and fire. Climate change is expected to increase both sets of risks, requiring forward-thinking adaptation planning to mitigate them in the future. However, the Australian regulatory system in general has been slow to draw an explicit link between emerging climate change risks and adaptation planning. Each new disaster is inevitably greeted with

274. Baker-Jones, *supra* note 268, at 372.

275. *See* Macintosh, *supra* note 266; Mike Steketee, *Come Hell or High Water*, SYDNEY MORNING HERALD (Aug. 9, 2013), http://www.smh.com.au/business/property/come-hell-or-high-water-20130808-2rkeb.html.

a public inquiry of some kind, but with little consideration of how climate change might exacerbate risks in the future.[276]

There are signs that litigation is beginning to bridge this gap, even though climate change is often not explicitly discussed in the judgments or raised in the arguments of parties. For example, in planning disputes considering flood risks, the notion that "what is [the 1 in 100 flood level] today will not be [1 in 100] in 50 or 100 years time" is a consideration that "is coming into play now in determining whether developments should be allowed to proceed."[277] Litigation over development in flood prone areas in some jurisdictions is also starting to engage with the more complex question of how climate change might affect flood risk for existing development surrounding a new project, with implications for the adequacy of infrastructure provision and access to emergency services.[278] Here, the issue is not that the new development itself is "getting wet" but that there is "an island, an isolated island of people . . . who then have problems with being cut off from services, including emergency services, in times when floodwaters combined with climate change mean that existing infrastructure and existing development will go under in the future."[279]

In the case of fire risks, stringent new planning requirements—such as the Bushfire Management Overlay (BMO) developed in the State of Victoria—are also generating litigation activity.[280] Several cases concerning interpretation and application of the BMO have also come before VCAT.[281] These cases have tended to take a cautious approach to development in high fire risk areas, with particular emphasis laid on the preeminent value of protecting human life and the consequent

276. See Bonyhady, *supra* note 211, at 265 for a discussion of examples.

277. Skype Interview with Participant A5 (Mar. 26, 2013).

278. *See, e.g.*, *Arora Constr. Pty Ltd. & Anor v Gold Coast City Council & Anor* [2012] QPEC 52.

279. Skype Interview with Participant A5 (Mar. 26, 2013).

280. Some of this litigation is potentially anti-regulatory and parallels regulatory takings litigation in the United States. For instance, disquiet over restrictions on development in areas falling within the BMO has seen affected local governments and property owners exploring possibilities for a class action against the Victorian government on the basis of the effects on property values. *See* Pia Akerman, *Owners Threaten Action over Fire Plan*, AUSTRALIAN (Aug. 7, 2013), http://www.theaustralian.com.au/national-affairs/owners-threaten-action-over-fire-plan/story-fn59niix-1226692405821.

281. *See Robertson v. Mornington Peninsula SC* [2011] VCAT 1393; *Lester v Yarra Ranges SC* [2012] VCAT 8; *Land Mgmt. Surveys v Strathbogie SC* [2012] VCAT 77; *Marsden v Macedon Ranges CC* [2012] VCAT 1038; *Kennedy v Cardinia SC & Ors* [2012] VCAT 1676; *Adamson v Yarra Ranges SC* [2013] VCAT 683.

need to exercise caution. In the case of *Land Management Surveys v Strathbogie Shire Council*, for instance, VCAT described the Black Saturday bushfires and the Royal Commission that followed as a "game-changer," ushering in a "new paradigm" in terms of future planning for bushfire risks.[282] Similarly, in *Adamson v Yarra Ranges Shire Council*, the Tribunal stressed the need for decision makers to "exercise considerable caution and to press the 'go' button only when satisfied that it is highly likely that people and property will be able to survive the worst expected conditions."[283]

However, the Tribunal has also recognized that in certain cases it may be impossible to meet bushfire safety requirements where these require large-scale vegetation removal that would cause irreconcilable conflict with competing native vegetation and biodiversity conservation objectives.[284] In addition, the Tribunal has generally adopted an approach of evaluating proposals in their broader context, refusing to grant permits where the reduction of risk relies on others taking wildfire management measures, such as vegetation removal, on adjoining land.[285]

A few cases have also drawn a link to the potential for exacerbation of fire risk as a result of climate change and the importance of preventative measures in this context. For instance, in *Carey & Ors v Murrindindi Shire Council*, decided by VCAT in 2011 prior to the BMO coming into effect, the applicant appealed the Council's decision granting a permit for the construction of a community hall on a neighboring property.[286] The area had been burnt in the Black Saturday bushfires and VCAT considered that the proposal should be evaluated in light of recommendations from the inquiry following the disaster that bushfire management-related planning decisions should prioritize avoiding the loss of life.[287] Although VCAT ultimately approved the permit subject to amendments, it stressed the need for a cautious approach in evaluating the level of risk, including, for example, the closure of the community hall on extreme and catastrophic fire risk days.[288] The deciding Tribunal

282. [2012] VCAT ¶ 58; *see also Middle Creek Properties Pty Ltd. v Wodonga CC* [2013] VCAT 258, ¶¶ 51–56.

283. [2013] VCAT ¶ 46.

284. *Robertson* [2011] VCAT 1393, ¶ 53; *Kennedy* [2012] VCAT 1676, ¶¶ 13–18; *see also* Naylor, *supra* note 206.

285. *See, e.g.*, *Lester* [2012] VCAT 8, ¶ 22; *Adamson* [2013] VCAT 683, ¶ 34.

286. [2011] VCAT 76, ¶¶ 5–9.

287. *Id.* ¶¶ 3–4.

288. *Id.* ¶ 114.

member remarked that he was "conscious that a prudent approach is needed and that the climate change predictions at this point suggest that Victoria will get more extreme fire danger days as time goes on, not less."[289]

Australian adaptation litigation raising questions of wildfire risk (or, for that matter, flood risk) has by no means progressed to the same degree as the case law on coastal climate change hazards. There has not been a consistent and explicit recognition of the need for adaptation measures and the consideration of climate change risks in current planning in the same way as has occurred in the coastal management area. However, as the VCAT bushfire decisions demonstrate, litigation is playing a role in reinforcing the heightened profile of adaptation risks, such as fire, and is starting to make the connection to the likelihood of their exacerbation with climate change. The VCAT case law interpreting the planning provisions and BMO has also laid the foundations of a precautionary approach to wildfire risk that is likely to promote adaptive outcomes over the longer term.

This Australian litigation has significant implications for the U.S. context. As the U.S. case on hazard planning in the electricity context suggests, adapting to greater natural hazard risks could be an important emerging area for U.S. litigation. The Australian experience around litigation over climate disaster risks could provide an important model for how to link the science with policy steps.

3. Liability for Climate Change Harms

As proactive planning measures to address adaptation concerns have gathered momentum in Australia, another emerging area of litigation focuses on legal liability for climate change harms and damage suffered as a result of climate-linked disasters. This litigation is developing both in the coastal context and in the aftermath of extreme weather events like wildfires and floods. The coastal cases have primarily raised questions over the liability of local governments for damage to coastal properties from erosion and storms, the effects of which are argued to be exacerbated by councils' policies or actions to deal with coastal hazards.[290] Class actions against governments and private corporate actors have also been brought or are actively being considered to recover damages for victims of disastrous

289. *Id.*

290. *See* Interview with Participant A10 (May 8, 2013).

fires and floods where plaintiffs allege defendants' actions or inaction contributed to the harm suffered.[291] Climate change as an issue has remained in the background, rather than the foreground, of these cases. Nonetheless, as interviews reveal, key stakeholders in this space—including governments, insurers, and their legal advisers—are keenly aware of the relevance of these cases for shaping future adaptation regulation.

Litigation raising liability issues—even just the fear of such litigation—is having a variety of effects on the regulatory landscape for adaptation in Australia, some of which are promotive and some of which are anti-regulatory. This experience provides important lessons for U.S. litigants as they also attempt to use courts to push for greater proactive action. At times, liability can be a tool that helps to prompt more adaptive behaviors by government and corporate actors who take action to avoid exposure to litigation and damages claims. On other occasions, the surrounding political context in which decisions take place may mean that even positive results in the cases themselves negatively affect land use planning, at least in the near term, as decision-makers favor immediate financial and political gains over long-term risk management and protecting the interests of future generations.

In the coastal context in Australia, this double-edged nature of liability was highlighted by a number of interviewees. While most agreed that coastal adaptation cases, such as those discussed earlier, have had a pro-regulatory impact, several also observed that a side effect of the litigation, coupled with uncertainty created by key state governments revoking sea level rise policies,[292] has been heightened concerns about liability, particularly for local governments.[293] Under Australian state liability laws, local governments have various protections from liability with respect to the decisions they make or their other actions or omissions, unless those decisions or actions can be

291. *See* Mark Baker-Jones, *Litigation Risk from Climate Change*, GOV. NEWS (Jan. 14, 2015), http://www.governmentnews.com.au/2015/01/litigation-risk-from-climate-change-rising.

292. *See generally* Justine Bell & Mark Baker-Jones, *Retreat from Retreat – the Backward Evolution of Sea-Level Rise Policy in Australia, and the Implications for Local Government*, 19 LOC. GOV'T L.J. 23 (2014).

293. Skype Interview with Participant A8 (Apr. 24, 2013); Skype Interview with Participant A9 (May 6, 2013); Skype Interview with Participant A10 (May 8, 2013); Skype Interview with Participant A17 (May 30, 2013). This finding echoes concerns expressed by local governments and their insurers to a range of inquiries examining coastal management and adaptation issues. *See, e.g.*, HOUSE STANDING COMM., *supra* note 191, at 113–62; PRODUCTIVITY COMM'N, *supra* note 179, at 166–68.

shown to be manifestly unreasonable.[294] In a sense then, liability concerns on the part of local governments for climate-related damage flowing from their failure to act or inadequate consideration of climate change in decision-making may be more imagined than real. Nonetheless, such liability concerns are being taken seriously by local governments (and their insurers) and exerting an effect on adaptive behaviors as a consequence.

As the primary decision makers in most cases for coastal development, local governments face a "liability dilemma":

> [I]f they reject an application that goes before them for a development in an area that's then to be potentially vulnerable to inundation at some point then they face the prospect of that decision being taken to an appeals tribunal or land and environment court. If they approve it then they face the prospect in the future of winding up, you know, facing the court once again, but this time in a damages claim if the property is subsequently inundated and there's damage to the property or injury to the people dwelling there.[295]

Faced with this dilemma, some local governments have continued to take a long-term view, pushing forward with proactive planning policies that safeguard local development from future climate change risks. Given the wealth of scientific information supporting the likelihood of these risks occurring, such actions by local governments would most likely be considered "reasonable" by courts and provide a defense to future liability claims. But other local governments have pursued the opposite course, opting to address short-term political risks by appeasing development applicants through the approval of proposals in vulnerable locations.

Speaking about the change in the NSW sea level rise policy—which as the state government euphemistically characterizes it, gives councils the "flexibility to determine their own sea level rise projections to suit their local conditions"[296]—one interviewee remarked this has "caused all sorts of grief because some coastal councils have elected to set their mark at a lower figure than previously suggested because their elected representatives may not be believers in climate change."[297] Other lo-

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294. BAKER & MCKENZIE, LOCAL COUNCIL RISK OF LIABILITY IN THE FACE OF CLIMATE CHANGE – RESOLVING UNCERTAINTIES: A REPORT FOR THE AUSTRALIAN LOCAL GOVERNMENT ASSOCIATION 4 (2011).

295. Skype Interview with Participant A10 (May 8, 2013).

296. NSW ENV'T & HERITAGE, SEA LEVEL RISE, http://www.climatechange.environment.nsw.gov.au/impacts-of-climate-change/sea-level-and-costs (last visited Apr. 21, 2015).

297. Skype Interview with Australian Participant 17 (May 30, 2013). Examples include Eurobodalla Council and Shoalhaven Council in NSW, and the

cal government authorities have found themselves "in a very difficult position because their insurers are saying, well, the science backed up that predicted sea level rise [in the former NSW policy]; that's how you ought to be formulating your planning policies and implementing your zoning maps."[298] Matching reforms in the state of Queensland to remove sea level rise planning benchmarks from coastal planning documents are creating similar concerns and a range of responses from local governments. Another interviewee described how a Queensland local government—the Sunshine Coast Regional Council—is attempting to indemnify itself against future liability for negligent decision-making on climate risks by advising applicants that they, and not the council, bear responsibility for the adequacy and veracity of information supplied for the purpose of decision-making.[299]

The concerns of coastal local governments over liability for their planning and development decisions that either take account of or disregard climate change risks have been heightened by their observing the ongoing litigation that has engulfed Byron Shire Council over its response to problems of erosion, storm surge and sea level rise in Byron Bay on the New South Wales north coast. This litigation concerns protection of the beach at Belongil Spit, a popular holiday destination and the site of many multi-million dollar homes. The original subdivision of the Belongil in the 1880s was a right line subdivision with a 100 foot protecting buffer to seaward.[300] Over the past 20–30 years, the Belongil has experienced severe erosion such that the right line boundaries of property owners are now on the foredune or in some places on the beach itself.[301] Byron Shire Council has consistently refused to undertake beach protection measures or (costly) beach nourishment at Belongil. For several years, it has also had in place a policy of "planned re-

Gold Coast Council in Queensland where mayors have specifically come out saying "we don't believe in climate change." Skype Interview with Australian Participant 9 (May 6, 2013).

298. Skype Interview with Australian Participant 8 (Apr. 24, 2013).

299. Skype Interview with Australian Participant 18 (July 18, 2013).

300. A right line is a fixed line property boundary as opposed to an ambulatory line. *See* Bruce Thom, *Beach Protection in NSW: New Measures to Secure the Environment and Amenity of NSW Beaches*, 20 ENVTL. & PLAN. L.J. 325, 342 (2003).

301. Skype Interview with Participant A11 (May 9, 2013). The reasons for erosion are disputed: some see it as the result of natural coastal processes exacerbated by sea level rise and climate change whereas others point to a protective sea wall out from Byron's main beach and its effects on natural sand flows.

treat" under which development must be removed or relocated once the erosion escarpment (the landward limit of erosion) encroaches within a set distance.[302] From one perspective, this policy is a climate change adaptation and preparedness measure; sea level rise from climate change is likely to worsen the problem of beach erosion at Belongil. This view is disputed by Belongil property owners, however, who suggest more complex political and ideological reasons for the Council's stance.[303] Property owners have largely been prohibited by the Council from constructing private erosion protection works, leading to litigation, some of which is still ongoing.[304]

While the litigation concerning Byron Bay has not yet resolved questions over whether the local government is required to undertake beach protection measures, is liable for any damage resulting from a failure to do so, or is justified in its approach by an adaptation policy based on a premise of planned retreat, the litigation has been seen as providing salutary lessons about "the challenges a local authority might face if it decides to take a highly precautionary approach to coastal climate change hazards."[305] For other local governments looking on, it also "has been instrumental in making councils generally very concerned about their potential legal liability in relation to this damage."[306] As one interviewee explained, for "most coastal councils in New South Wales," the liability issue "is the single most important issue. It is the only thing on the agenda."[307] In response, many councils have called for greater protections from liability, including the enactment of statutory liability shields for local government decision-making on coastal development that is undertaken in good faith.[308] However, even

302. PRODUCTIVITY COMM'N, *supra* note 179, at 208.

303. *See generally* Ralf Buckley, *Misperceptions of Climate Change Damage Coastal Tourism: Case Study of Byron Bay, Australia*, 12 TOURISM REV. INT'L 71 (2008).

304. *See Vaughan v Byron Shire Council* [2009] NSWLEC 88; *Vaughan v Byron Shire Council* [2012] NSWSC 75; *Ralph Lauren v Byron Shire Council* [2012] NSWLEC 274; *Byron Shire Council v Vaughan (No. 2)* [2009] NSWLEC 110; *see also* McDonald, *supra* note 27, at 124.

305. McDonald, *supra* note 27, at 130.

306. Skype Interview with Participant A10 (May 8, 2013); *see* PRODUCTIVITY COMM'N, *supra* note 179, at 168. Several other submitters to the inquiry called for the enactment of similar liability shields to that in New South Wales in other states and territories.

307. Skype Interview with Participant A17 (May 30, 2013).

308. An example is section 733 of the state's *Local Government Act 1993* (NSW). This exemption originally applied only to advice or actions relating to flood liable land and land in the coastal zone affected by a "coastline hazard." The effect of the 2010 legislative amendments was to extend coverage of a

where an exemption from liability is available, it will only ever be applied after the fact. In addition, there is no guarantee that a court will find that a government decision-maker has acted in good faith, especially if the decision-maker concerned has ignored readily available scientific information as to the extent of future climate change risks.

Overall, the state of affairs at the moment is one of some confusion and uncertainty over the potential for and extent of legal liability, which at least in some cases appears to be hindering proactive adaptation actions by governments. A recent report by the independent Australian Productivity Commission on *Barriers to Effective Climate Change Adaptation* identified "legal liability concerns" as one of several barriers hindering local governments' ability to plan for and implement adaptation measures.[309] It concluded:

> Uncertainty about the circumstances in which councils are liable affects local government decisions – in particular, the extent to which adaptation considerations are incorporated into land-use planning and development practices. Several participants suggested that the prospect of legal challenge has prevented councils from acting proactively, and has resulted in the adoption of conservative approaches to development approvals.[310]

One interviewee described the Productivity Commission's findings on this issue as "a pretty good summary of the position facing councils."[311] At the same time, others emphasized that over the longer term, liability lawsuits are likely to drive a more positive adaptive response in the coastal adaptation sphere, particularly if Australia was to see a series of climate change-linked disasters affecting large coastal property interests or major infrastructure. As one lawyer put it:

> The risk is known, the risk is out there, you've got very credible scientists talking about this, and regardless of what governments are saying as to whether or not this is policy, it will be very hard for a respondent or defendant in those proceedings to say I was not aware of this. It would be even harder for them to say, there's a good reason why I should not have taken this into account. Sure the science is

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statutory liability exemption to local governments' provision of information relating to climate change or sea level rise, and failures to upgrade flood mitigation or coastal management works in response to projected or actual impacts of climate change. *Local Government Act 1993* (NSW) s 733(3)(f3), (f5); *accord* Macintosh, *supra* note 266; Tayanah O'Donnell & Louise Gates, *Getting the Balance Right: A Renewed Need for the Public Interest Test in Addressing Coastal Climate Change and Sea Level Rise*, 30 ENVTL. & PLAN. L.J. 220 (2013).

309. PRODUCTIVITY COMM'N, *supra* note 179, at 147.

310. *Id.* at 168.

311. Skype Interview with Australian Participant 10 (May 8, 2013).

> fuzzy around the edges and what-have-you but the courts and planning tribunals look at those types of people and they're very mainstream, they're government funded and you know they're not, you know, Cassandras, they are actually just saying, well, this is what the science is telling us. So you'd better be planning as a consequence.[312]

Government liability for property and other damage caused by climate change-linked weather events is also emerging as an issue in the regulatory response to other adaptation risks, particularly flood and fire. Like the post-disaster tort claims filed in the United States, Australian litigation raising questions about liability for damage following weather-related disasters could potentially be a tool for addressing non-adaptive behaviors and promoting more adaptive practices.

For government actors, liability questions raised in post-disaster litigation generally relate to the adequacy of the emergency and disaster management response, including the contribution of their actions (or inaction) to the damage suffered. For example, in the aftermath of the Queensland 2011 flood, which saw huge areas of the state including the capital city of Brisbane underwater, the law firm Maurice Blackburn filed a class action in July 2014 against the Queensland government and water supply authorities that operate the Wivenhoe and Somerset dams. Large quantities of water were discharged from dams during the flood event, which dramatically increased downstream flooding. In 2012, the Queensland Floods Commission Inquiry found non-compliance with the official manual governing operation of the dams,[313] raising questions of the liability of dam operators (as well as the state government that authorizes the manual) for any resulting damage. The class action will allege that the negligent operation of the dams by water supply authorities in the lead up to and during the 2011 flood significantly contributed to downstream flooding and exacerbated the resulting damage.[314] Litigation funder, Bentham IMF, has described the litigation as playing "a critical role" in

312. Skype Interview with Australian Participant 8 (Apr. 24, 2013).

313. QUEENSLAND FLOODS COMM'N OF INQUIRY, FINAL REPORT 30 (2012), *available at* http://www.floodcommission.qld.gov.au/publications/final-report.

314. For details, see *Queensland Floods Class Action*, MAURICE BLACKBURN LAW., http://www.mauriceblackburn.com.au/areas-of-practice/class-actions/current-class-actions/queensland-floods-class-action.aspx (last visited Apr. 21, 2015); *see also* Peter Foley, *State Facing $1b Payout in Flood Class Action Suit*, QUEENSLAND TIMES (June 6, 2013, 6:00 AM), http://www.qt.com.au/news/state-facing-1b-payout-in-flood-class-action-suit/1897029; Bridie Jabour, *Thousands Registered, But No Timeline for Flood Class Action*, BRISBANE TIMES (Apr. 24, 2013), http://www.brisbanetimes.com.au/queensland/thousands-registered-but-no-timeline-for-flood-class-action-20130423-2icqd.html.

helping "to ensure better standards of behaviour going forward to avoid future events."[315]

The Black Saturday bushfire disaster has also resulted in several class action lawsuits targeting public actors such as emergency management authorities, local governments, state government departments, and rural fire authorities. Claims against government actors in this litigation have crystallized around an alleged failure to warn citizens in danger from fire threat.[316] In addition—and similar to the situation of coastal climate change hazards—questions of public versus private responsibility for risk management are beginning to be raised. For instance, is fire risk reduction entirely a state responsibility to manage (e.g., through controlled burning) or do private landholders also have an obligation to ensure proper maintenance of wildfire risk mitigation measures such as vegetation clearance around their properties?[317]

Private entities have also been a frequent target of liability claims. Following a finding of the Victorian Bushfire Royal Commission that five of the Black Saturday fires were caused by failure of electricity assets,[318] various class actions were brought seeking damages against electricity companies with responsibility for the maintenance and distribution of electricity lines. These claims have generally settled on a without prejudice basis.[319] The willingness of the defendants to settle and

315. *Stark Picture Painted As 2011 Queensland Floods Class Action Filed*, MAURICE BLACKBURN LAW. (July 8, 2014), http://www.mauriceblackburn.com.au/about/media-centre/media-statements/2014/stark-picture-painted-as-2011-queensland-floods-class-action-filed.

316. *E.g.*, *Matthews v SPI Electricity* [2011] VSC 167. This litigation, commenced in 2011, is ongoing in the Victorian Supreme Court. Claims have been made against state authorities such as the Department of Sustainability and Environment, the Country Fire Authority, and the State of Victoria.

317. Skype Interview with Participant A17 (May 30, 2013).

318. 2009 VICTORIA BUSHFIRES ROYAL COMM'N, THE FIRES AND THE FIRE-RELATED DEATHS: FINAL REPORT 226 (2010).

319. For instance, Powercor reached settlements for $40 million in respect of the Horsham fire and $10 million in respect of a fire near Pomborneit. *See* AAP, *Powercor Settles Bushfire Class Action*, AGE (Dec. 19, 2012), http://www.theage.com.au/victoria/powercor-settles-bushfire-class-action-20121219-2bmqn.html); Cameron Houston & Michael Bachelard, *Bushfire Victims To Get $40m*, AGE (Oct. 23, 2011), http://www.theage.com.au/victoria/bushfire-victims-to-get-40m-20111022-1mdvq.html. SPI Electricity reached a settlement in respect of the Beechworth fire for $32.85 million. *See* Deed of Settlement Between Mercieca and Coombes, and SPI Electricity & Ors (2012), *available at* http://www.nlgsolicitors.com.au/services?id_service_area=9. Most recently, electricity provider SPAusNet and the Victorian government reached a settlement of just under $500 million regarding the largest fire near Kingslake. *See* Lee et al., *Black Saturday Victims Win $500m Settle-*

the size of the payouts agreed upon suggest real concerns on the part of power companies over their responsibility for fires caused by inadequately maintained power lines and aging electricity infrastructure.[320] Interestingly, exposure to litigation risk following disastrous wildfires seems to be encouraging some companies, such as electricity distributors, to take proactive action to "climate change proof" their infrastructure to minimize the potential for costly payouts to victims of future events.[321] On the other hand, however, some electricity distributors sued over their contribution to wildfire damage are seeking ways to pass their litigation costs back to electricity ratepayers.[322] If this strategy secures the approval of the federal Australian Energy Regulator, it could significantly dampen incentives for electricity companies to manage fire risks proactively.[323]

To date, none of the liability claims brought in Australia following major disasters has raised any argument with respect to climate change and its potential to exacerbate disaster risk. However, this issue is clearly at the forefront of the minds of those with responsibility for risk management in this area, including government authorities, private and public sector infrastructure providers, and insurers.[324] Inquiries following dis-

ment (July 15, 2014), http://www.theage.com.au/victoria/black-Saturday-victims-win-500m-settlement-20140715-zt7jh.html. Ausnet also settled a class action brought by victims of the Maryville fire, agreeing to a $300 million settlement. *See* Steve Lillebuen, *Black Saturday Survivors of Marysville Bushfire Win $300m Settlement*, AGE, Feb.6, 2015, http://www.theage.com.au/victoria/black-saturday-survivors-of-marysville-bushfire-win-300m-settlement-20150205-137kdo.html.

320. Leanne Mezrani, *Bushfires Spark Liability Debate*, LAW. WKLY. (Jan. 8, 2013), http://www.lawyersweekly.com.au/news/bushfires-spark-liability-debate.

321. Darren Gray, *Special Power Lines To Combat Bushfires*, AGE (Nov. 29, 2013), http://www.theage.com.au/victoria/special-power-lines-to-combat-bushfires-20131128-2ye5h.html. Ausnet also settled a class action brought by victims of the Maryville fire, agreeing to a $300 million settlement. *See* Steve Lillebuen, *Black Saturday Survivors of Marysville Bushfire Win $300m Settlement*, AGE (Feb. 6, 2015), http://www.theage.com.au/victoria/black-saturday-survivors-of-marysville-bushfire-win-300m-settlement-20150205-137kdo.html.

322. Chris Vedelago & Adam Carey, *Victoria State Government Is Suing AusNet Services for Bushfire Damages*, AGE (Dec. 28, 2014), http://www.theage.com.au/victoria/victoria-state-government-is-suing-ausnet-services-for-bushfire-damages-20141227-12ear5.html.

323. On the question of the costs of adaptation and who should pay for adaptation measures, see Daniel A. Farber, *Adapting to Climate Change: Who Should Pay?*, 23 LAND USE & ENVTL L. 1 (2007).

324. Skype Interview with Participant A17 (May 30, 2013); *see also* Skype Interview with Participant A18 (July 18, 2013).

asters, such as the Queensland Floods Commission and the Victorian Royal Bushfire Commission, have made findings that clearly point to the role of human activities in causing or exacerbating the damage caused. The Bushfire Royal Commission, for example, not only found that the Black Saturday bushfires were caused by electrical faults, but also that the risk of power line failure increases on days of extreme fire danger. It is a short step from such findings to an expectation that public and private sector actors whose activities may contribute to disaster risks will take account of the potential for climate change to enhance those risks.[325] The extent to which this growing recognition of the liability associated with disaster and climate change will drive a regulatory response is not clear at this stage. However, it does appear that litigation and the development of law in response to disaster risks in Australia will be an important component of its climate change adaptation efforts.[326]

III. LESSONS FROM AUSTRALIAN ADAPTATION LITIGATION FOR THE UNITED STATES

The more-developed Australian adaptation litigation provides a helpful model as U.S. litigators consider next steps. While significant differences between the countries prevent perfect parallels, the core similarities in legal systems and their approaches to land use planning allow for useful comparisons to be drawn. This Part suggests three main lessons offered by Australian adaptation litigation for the nascent U.S. litigation efforts.

The first is that litigation—in the aggregate—can help change planning culture in ways needed for climate change adaptation. The Australian cases have served as a useful way to inject consideration of climate change risks into planning and infrastructure management decision-making under existing regulatory frameworks. Adaptation litigation in Australia has not involved the kind of big splash, high profile cases that have characterized the U.S. mitigation sphere, such as *Massachusetts v. EPA*. But adaptation litigation there has been highly successful in taking the novel (perhaps, for some, the "unthinkable")[327] idea of considering climate change risks in current de-

325. Mezrani, *supra* note 320.

326. ALEXANDER ZAHAR ET AL., AUSTRALIAN CLIMATE LAW IN GLOBAL CONTEXT 400 (2013).

327. CHRISTOPHER D. STONE, SHOULD TREES HAVE STANDING? TOWARD LEGAL RIGHTS FOR NATURAL OBJECTS (1974).

velopment and planning, and making it routine and workable.[328]

Cases taking sea level rise and coastal flooding into account are now so common in Australia that they generate little fanfare.[329] The necessity of assessing climate change risks as a matter of course, particularly on the coast, has seeped into the collective consciousness of those involved in the planning and development sector in Australia. The idea has taken a particularly tenacious hold in the minds of the professional staff of state and local government planning agencies, engineers and planners, and insurers. This remains the case despite moves by several conservative state governments (especially in New South Wales and Queensland) and some elected local councilors in coastal regions to deny or downplay the importance of climate change risks.[330]

In the first wave of U.S. cases, some petitioners have already succeeded in getting that kind of consideration in particular contexts. For instance, *Karan*, the takings case, illustrates the impact of including adaptation benefits in just compensation analysis, and the energy infrastructure petitions and the ConEd settlement indicate possibilities for public utility commissions to help the grid adapt.[331] But the Australian litigation experience shows the indirect regulatory impacts that can accrue as this litigation unfolds. Once enough of these cases change individual planning decisions, planners and developers may begin to make different assumptions from the outset that are more adaptive without the necessity of stakeholders using litigation to push them.[332] This possibility reiterates the value of continuing to bring these small-scale planning suits in the U.S. context even if their direct, individual impact is very local.

The second lesson that can be drawn from the Australian experience is the catalytic role played by disasters and related litigation in forwarding action on adaptation. The pre-Superstorm Sandy U.S. climate change litigation brought in the aftermath of disasters focused primarily on tortious harms suffered by those injured.[333] The Australian context also contains class actions aimed at recovering damages from public

328. Skype Interview with Participant A5 (Mar. 26, 2013); Skype Interview with Participant A17 (May 30, 2013).

329. Skype Interview with Participant A7 (Apr. 11, 2013).

330. Skype Interview with Participant A9 (May 6, 2013).

331. *See supra* Part I.C.2.

332. *See supra* Part II.C.1.

333. *See supra* Part I.C.1.

and private actors whose activities are alleged to have contributed to the harms suffered.[334]

But Australian lawsuits over major events, such as the Black Saturday bushfires and Queensland 2011 floods, have also stimulated improved planning measures and disputes over their implementation. In both the fire and flood contexts, lawsuits simultaneously helped push disaster planning forward and limited efforts by private property owners to oppose them.[335] The role of this litigation provides a helpful model for U.S. efforts moving forward.

Two of the six U.S. adaptation-planning suits represent this type of approach, the petitions to the New York Public Commission and the now-withdrawn Illinois insurance case. Both cases suggest the potential for this type of litigation in the United States. The decision by the Commission in the ConEd case reflects a strong concern that infrastructure should be better prepared to deal with disasters than it was at the time of Superstorm Sandy.[336] The lawsuit by insurers, and the threat of similar litigation in the future, signals a need for governmental authorities to match fine words in adaptation plans with on-the-ground action if they are to avoid liability. These suits—paired with the Australian experience—suggest possibilities for post-disaster lawsuits and petitions to assist needed policy change in energy and other land use planning areas. As noted above, however, this promotive impact may depend on how these cases are framed. If they do not acknowledge climate-related impacts and propose measures that do not take them into account, their results could be maladaptive as well.

A final lesson that emerges from the Australian litigation, particularly that over coastal retreat and protection measures implemented in Byron Bay, is the need to reconcile the often competing interests of public adaptation strategies and private property rights. In Australia, disputes between property owners and councils over beach protection, coupled with legal liability concerns related to local government decision-making on coastal development, have significantly muddied the waters for proactive adaptation measures.[337]

These Australian disputes serve as a cautionary tale about the unpredictable results of litigation and concerns over liability on behavior. They also highlight the difficulties encountered

334. *See supra* Part II.C.2.
335. *See supra* Part II.C.2.
336. *See supra* Part I.C.2.
337. *See supra* Part II.C.1.

in shifting from a perspective that favors short-term private property protection to one that focuses on the longer-term approach and includes public adaptation benefits in its valuation model. This type of problem is not new to the United States. For example, U.S. regulatory takings suits have at times served as a similar regulatory damper and have the potential in the future to constrain climate change adaptation efforts. The *Karan* case suggests, at least in a post-disaster context where there is a clearly recognized need for reducing vulnerability to future impacts, that private property interests may not always win out in such situations.[338] Nonetheless, the Australian experience indicates that litigation over local government planning, such as in the now-withdrawn Illinois insurance case, is not always a useful tool for driving governments towards decisions that promote proactive adaptation outcomes; the threat of litigation may equally scare them into silence and inaction, or push them towards maladaptive planning.[339]

As U.S. litigation moves forward in this area, petitioners need to have an awareness of where the dangers of a "Byron Bay" type backlash might occur and how they might prevent or mitigate such challenges. The Australian experience suggests the importance of a litigation strategy that goes beyond each individual case to situate it in the broader litigation and political context. Such a strategy may be hard in such localized cases, where those bringing suits may not be connected into national and regional networks of other potential petitioners. However, the potential consequences make it critical for those playing a leadership role in U.S. adaptation litigation nationally and regionally to reach out to potential litigants locally and coordinate adequately.

CONCLUSION

As the importance and urgency of climate change adaptation has gained increasing acceptance globally, there has been a parallel growth in attention to adaptation issues in regulation and litigation at the domestic level. Australia and the United States share in common a significant exposure to climate change risks, and both have suffered a number of extreme weather events in recent years.

338. *See supra* Part I.C.2.

339. For a similar critique in the Australian context, see Macintosh, *supra* note 266.

To date, differences in their degree of short-term risk have likely contributed to Australia's more developed jurisprudence around adaptation. In Australia, the widespread exposure of populated centers to coastal climate change hazards, as well as the wide-ranging effects of extreme weather events for the country as a whole, seem to have propelled earlier consideration of adaptation issues by both governments and courts. This has not occurred to the same extent in the United States. Nonetheless, post-Superstorm Sandy, the regulatory landscape for adaptation regulation in the United States is changing rapidly, including the emergence of litigation directly focusing on planning for future climate change risks.

Whether the U.S. adaptation litigation becomes as extensive and influential as that in Australia remains to be seen. Recent U.S. cases suggest the possibilities for litigation to play an important role in local and state planning regarding land use, energy, and coastal waters, and in other public and private decisionmaking relevant to that planning, such as in the insurance context. But the sample size is still very small. In contrast to mitigation litigation, however, the capacity for adaptation cases to contribute to an overall national approach—other than through their aggregate impacts on planning culture—seems more limited. The context-specific geography of climate change impacts paired with the extent of state and local authority over land use planning and public utilities means that cases likely will have greatest impact in the state in which they are located and others with similar adaptation issues. However, as Australian litigation experience suggests, coordinating strategies are needed in the United States to maximize cumulative planning culture impacts and limit political backlash.

As to the future trajectory of adaptation litigation in the United States, interviewees offered several interesting predictions, many of which resonate with the emerging case law to date. Several interviewees noted a potential role for litigation under the National Environmental Policy Act (NEPA) and state equivalents (such as the California Environmental Quality Act – CEQA) to be a driver for incorporating climate change into strategic land use planning and development, particularly on the coast.[340] Such litigation would mirror the Australian coastal case law brought under state environmental and land use laws

340. Telephone Interview with Participant US-L (Dec. 2, 2013); In-person Interviews with Participant US-D (Nov. 14, 2012) and US-J (Jan. 14, 2013). The latter interviewee also discussed the link between such actions and environmental justice concerns of affected communities.

while also potentially drawing on the experience of the extensive NEPA case law seeking to integrate consideration of GHG emissions into environmental impact assessment.[341]

Other interviewees saw the greater occurrence of extreme weather and natural disasters as a potential spur for litigation and associated regulatory steps. For instance, one interviewee foresaw greater litigation in the aftermath of disaster against a range of actors—including architects, builders, engineers, and infrastructure providers—that might prompt a rethinking of design standards to ensure buildings and infrastructure are prepared for the worst climate impacts.[342] Another raised increased litigation over insurance companies refusing coverage for weather-related losses as a possible stimulus for regulation to control development in vulnerable areas.[343] Already, some New York law firms are offering services to clients whose property was damaged during Superstorm Sandy and who are now facing the prospect of denial of coverage by their insurance companies or very high "hurricane deductibles" as a condition of payouts.[344] While climate change is unlikely to be a central consideration in these cases, they may include discussions of climate science raised by questions over the meteorological definition of the event (hurricane or storm) and the specific nature of the damage (wind or flood).[345] These cases are complemented by emerging residential litigation, such as a suit by luxury condominium owners in New York's financial district against the building's management company alleging negligence for alleged inadequate action to protect common areas from flooding during Superstorm Sandy and the subsequent failure to pursue insurance claims on behalf of the owners.[346]

There is also the potential for the U.S. adaptation litigation to develop in unique directions, for which true parallels in Australia do not exist, as has occurred in cases over species list-

341. *See* Gerrard et al., *supra* note 23.

342. Telephone Interview with Participant US-G (Nov. 16, 2012).

343. In-person Interview with Participant US-F (Nov. 14, 2012).

344. *See Superstorm Sandy Insurance Claims*, NAPOLI, BERN, RIPKA, SHKOLNIK LLP, http://www.napolibern.com/Superstorm-Sandy-Insurance-Claims.aspx (last visited Apr. 21, 2015).

345. Donovan Burton, *Hurricane Sandy: Considerations for Climate Adaptation*, CLIMATE PLAN. (Nov. 20, 2012), http://www.climateplanning.com.au/blog/2012/11/20/hurricane-sandy-considerations-for-climate-adaptation.html.

346. Barbara Ross, *Luxury Condo Building in Financial District Hit in $35 Million Hurricane Sandy Suit*, NEW YORK DAILY NEWS (Nov. 19, 2012), http://www.nydailynews.com/life-style/real-estate/luxury-condo-hit-35-million-sandy-suit-article-1.1204856.

ings under the ESA. These cases are beginning to yield results for adaptation through their recognition of the need for land and species management to take the effects of a changing climate into account. In addition, Professor Robin Kundis Craig has explored the possibility of common law public trust doctrine and its application to management of coastal areas.[347]

Inchoate in the ESA and newer planning cases is also the question of whether litigation can play a role in fostering linkages between adaptation and mitigation efforts. This link is particularly clear in the ESA context given that long-term survival and recovery of ESA-listed species ultimately depends on addressing the root causes of climate change. However, it has emerged in broader planning contexts as well in Australia. This was vividly highlighted in late 2013 by responses to the contemporaneous timing of "unprecedented" wildfires in the State of New South Wales and the introduction of legislation into the Australian Parliament by the Abbott government designed to repeal the national carbon pricing mechanism for reducing GHG pollution.[348]

Along with purely adaptation-oriented issues concerned with coastal and disaster planning, such linkages (and tradeoffs) between mitigation and adaptation outcomes are likely to become a greater focus of regulation and litigation in the future in both countries. At times, mitigation and adaptation choices align, but not always. Adaptive measures may increase greenhouse gas emissions and mitigation measures may be maladaptive. As the changing climate forces hard choices about our use and management of natural resources, courts will likely serve as a critical forum for resolving these dilemmas.

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347. Kundis Craig, *supra* note 196.

348. *See, e.g.*, Agnes Nieuwenhuizen, *As NSW Burns, It's Time To Talk About Climate Change*, AGE (Oct. 21, 2013), http://www.theage.com.au/comment/as-nsw-burns-its-time-to-talk-about-climate-change-20131021-2vwlr.html; Gerard Henderson, *Twisted Logic Links the Tragic NSW Bushfires with the Prime Minister, Climate Change and Abolishing the Carbon Tax*, AGE (Oct. 22, 2013), http://www.theage.com.au/comment/twisted-logic-links-the-tragic-nsw-bushfires-with-the-prime-minister-climate-change-and-abolishing-the-carbon-tax-20131021-2vx2n.html; David Holmes, *Is the Abbott Government Fiddling While NSW Burns?*, CONVERSATION (Oct. 18, 2013, 5:08 AM), http://theconversation.com/is-the-abbott-government-fiddling-while-nsw-burns-19339.